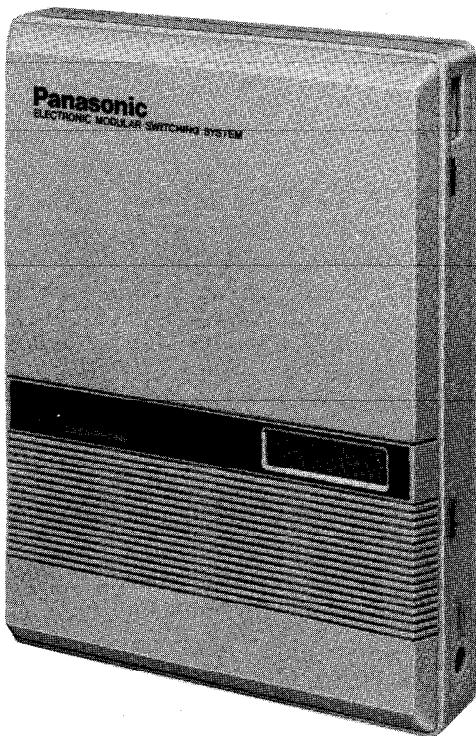


Service Manual

EASA-PHONE

ELECTRONIC MODULAR SWITCHING SYSTEM

KX-T61610-1



SPECIFICATIONS\ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ

NAME AND LOCATION\НАИМЕНОВАНИЕ И РАСПОЛОЖЕНИЕ

CONNECTION\СОЕДИНЕНИЯ

PROGRAMMING\ПРОГРАММИРОВАНИЕ

IC I/O DATA\ИНФОРМАЦИЯ О МИКРОСХЕМАХ ВВОДА/ВЫВОДА

BLOCK DIAGRAM\БЛОК - СХЕМА

TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES\ЦОКОЛЕВКА ИНТЕГРАЛЬНЫХ СХЕМ,
ТРАНЗИСТОРОВ И ДИОДОВ

SCHEMATIC DIAGRAM\ПРИНЦИПИАЛЬНЫЕ СХЕМЫ

WIRING CONNECTION DIAGRAM\СХЕМА СОЕДИНЕНИЙ

IC BLOCK DIAGRAM\БЛОК - СХЕМЫ ИНТЕГРАЛЬНЫХ СХЕМ

EXTENSION CORD CONNECTING METHOD\ПОДСОЕДИНЕНИЕ СЕРВИСНЫХ КАБЕЛЕЙ

ADJUSTMENTS\РЕГУЛИРОВКИ

EXPLODED VIEW\СБОРОЧНЫЙ ЧЕРТЕЖ

ACCESSORIES AND PACKING MATERIALS\ПРИНАДЛЕЖНОСТИ И УПАКОВОЧНЫЕ МАТЕРИАЛЫ

REPLACEMENT PARTS LIST\СПИСОК ЗАПАСНЫХ ЧАСТЕЙ

Matsushita Services Company
50 Meadowland Parkway,
Secaucus, New Jersey 07094

Panasonic Hawaii Inc.
99-859 Iwaiwa Street
P.O. Box 774
Honolulu, Hawaii 96808-0774

Matsushita Electric
of Canada Limited
5770 Ambler Drive, Mississauga,
Ontario, L4W 2T3

Panasonic Sales Company,
Division of Matsushita Electric
of Puerto Rico, Inc.
Ave. 65 De Infanteria, KM 9.7
Victoria Industrial Park
Carolina, Puerto Rico 00630

Panasonic

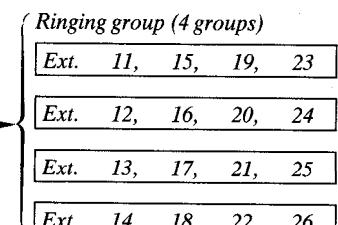
SPECIFICATIONS

General Description

1. Capacity	Outsides (CO) 6 Stations 16
2. Control Method	Stored Program CPU: 8 bits CPU, 4 bits CPU Control ROM: 64 KB, Control RAM: 16 KB
3. Switching	Space Division CMOS Crosspoint Switch
4. Power Supplies	Primary AC 120 V 60 Hz Secondary Station Supply Volt: -24 V, Circuit Volt: +5 V, ±13.4 V, -24 V, -18 V Power Failure • 6 outsides assigned to stations (1 through 6) ... power failure transfer • System operation for 4 hours by optional Backup Adaptor.
5. Dialing	Outward Dial Pulse 10PPS Internal Tone Dial Mode Conversion Dial Pulse 10PPS, 20PPS Tone Dial DP-DTMF, DTMF-DP
6. Intercom paths	4
7. Connector	Outsides (CO) Modular Jack (RJ-11) Station Modular Jack Paging Output Pin Jack (RCA JACK) External Music Input two-conductors Jack (MINI JACK 1/8 inch diameter)
8. EXT Connection	Cable 1 pair wire (Standard Telephone) 2 pair wire (KX-T61630/KX-T61620/KX-T61650/ KX-T30830/KX-T30820/KX-T30850)
9. SMDR	Interface RS-232C (Station Message) Printer, Data Terminal (Detail Recording) Date, Time, Ext. Number, CO Number, Detail Recording Calling Number, Calling Time, Account Code
10. Dimensions	334 (W) × 437 (H) × 107 (D) mm (13 15/32" × 17 7/32" × 4 7/32")
11. Weight	7.2 kg (15 lb 14 oz)
12. Power Consumption	40 W (Max.)

Characteristics

1. Station Loop Limit	KX-T61630/KX-T61620/KX-T61650/ KX-T30830/KX-T30820/KX-T30850 40 ohms Standard Telephone 600 ohms including set Doorphone 20 ohms
2. Minimum Leak Resistance	15,000 ohms
3. Maximum Number of Station Instruments per Line	1 (KX-T61630, KX-T61620, KX-T61650, KX-T30830, KX-T30820 or KX-T30850) or 6 sets/Ringing group
4. Ring Voltage	90 Vrms at 20 Hz depends on Ringing Load
5. Primary Power	120 Vac, 60 Hz, 0.4 A maximum
6. Central Office Loop Limit	1600 ohms maximum
7. Environmental Requirements	0–40°C, 10%–90%
8. Hookswitch Flash Timing Range	204–1000 msec



Design and specifications are subject to change without notice.

NAME AND LOCATION

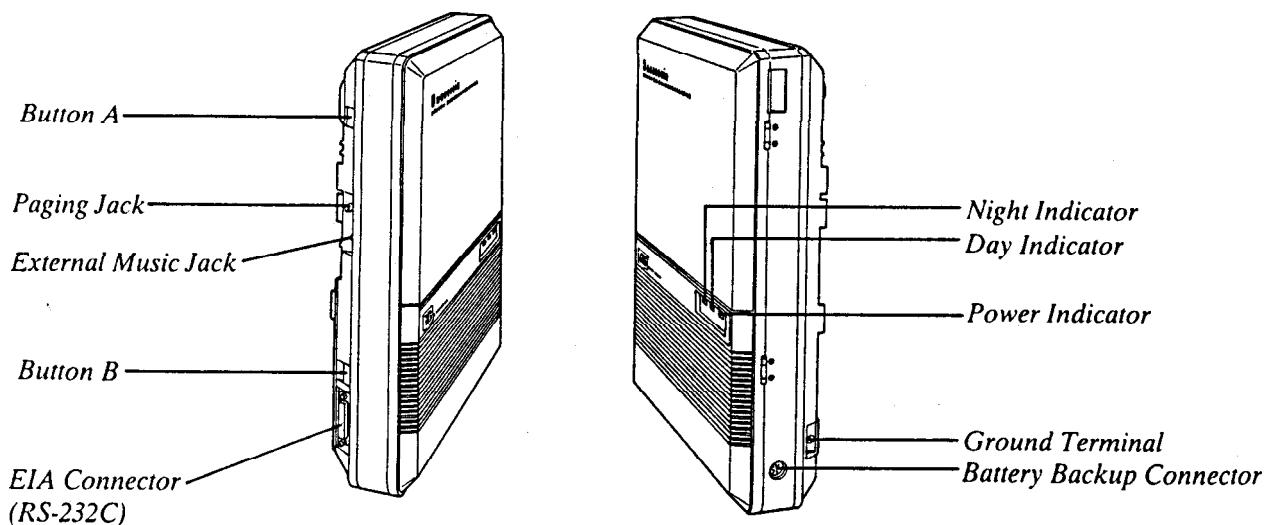


Fig. 3

Push Buttons A and B simultaneously to open Front Cover.

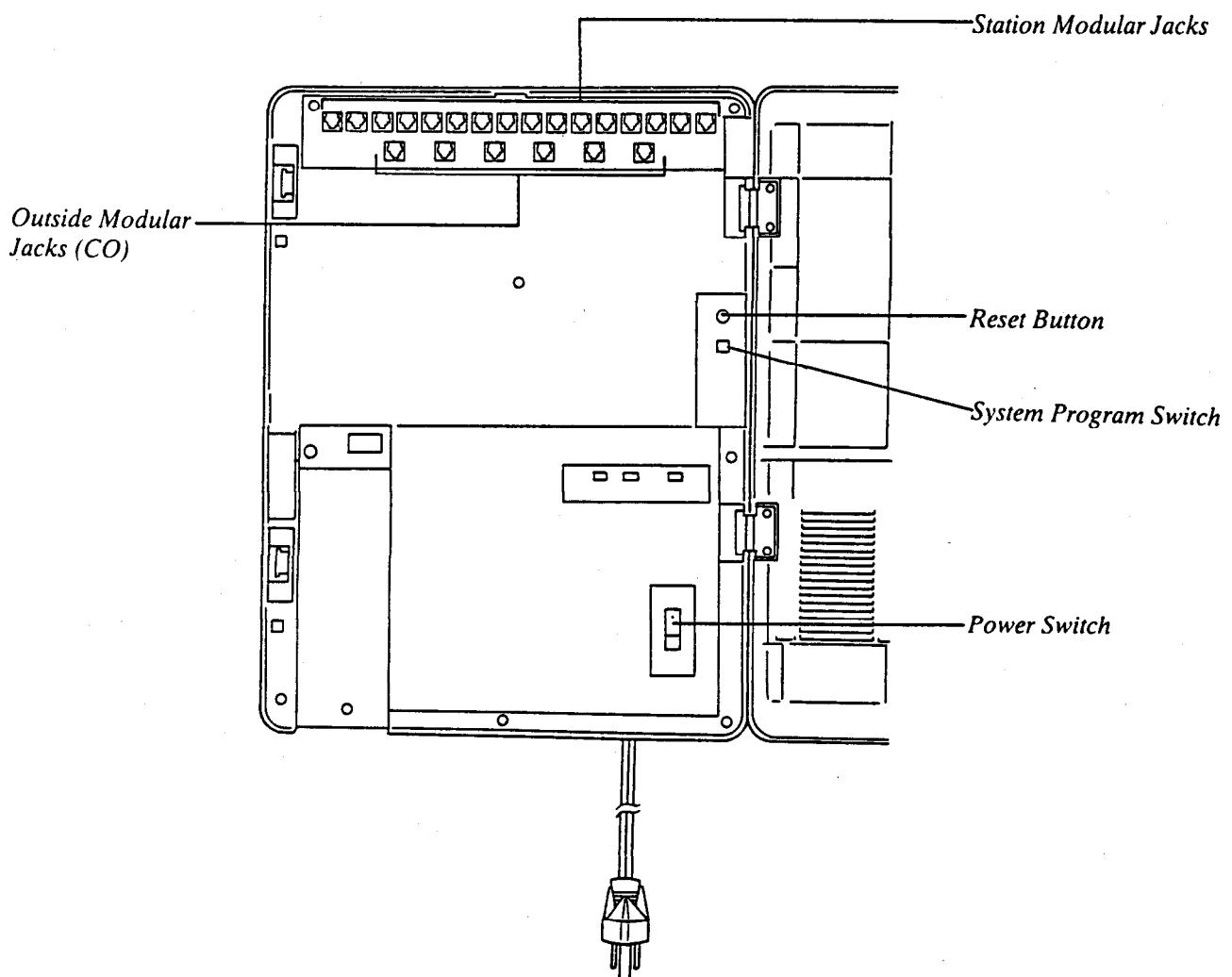


Fig. 4

CONNECTION

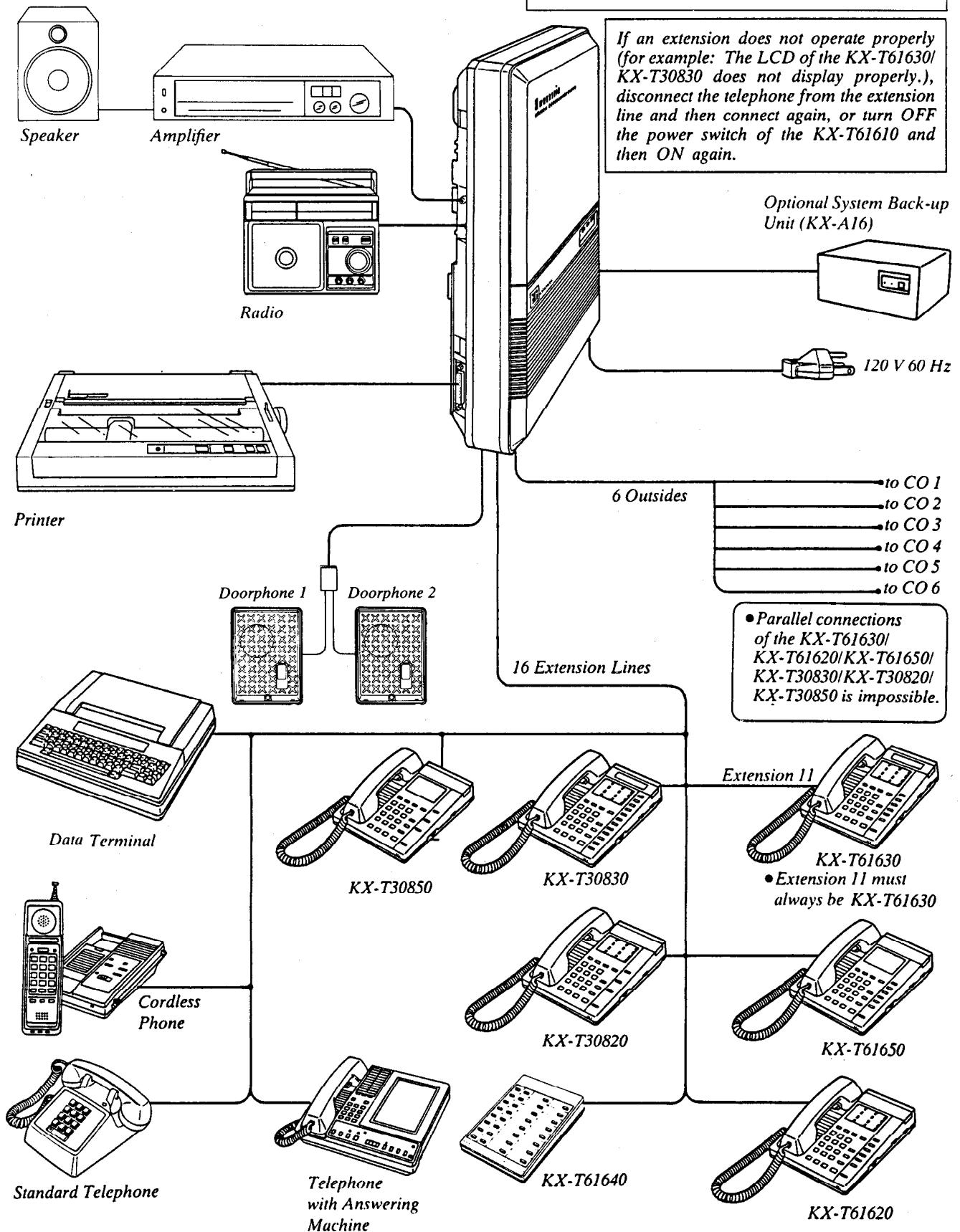


Fig. 5

PROGRAMMING

Programming Instructions

1. At extension 11:

All system programming changes (example: system clear, station program clear, toll restriction, hookswitch flash timing...) are done through extension 11.

- Extension 11 must always be a Panasonic model, KX-T61630.

2. System Program Switch setting:

The System Program Switch located on the KX-T61610 must be set to the PROGRAM position while making program changes. After all programming changes are completed, return the program switch to the SET position.

3. Overlay:

This overlay is used for programming the system and the program function names are inscribed on this card.

4. Before system programming, operate the system clear and station program clear to set to the default data of the programming.

A. System Clear:

- 1 Dial (99).
 - "SYSTEM CLEAR" will be displayed.
- 2 Press the NEXT button.
 - "ALL CLEAR?" will be displayed.
- 3 Press the MEMORY button to clear system.
- 4 To exit from system clear, press the END button.

The following features are preset as the default data.

Date and Time Setting
System Speed Dialing
CO Connection Assignment
Dial Mode (Tone/Pulse) Selection
Switching Mode (Day/Night Service)
Starting Time (Day/Night Service)
Flexible Day Outward Dialing Assignment
Flexible Night Outward Dialing Assignment
Flexible Day Ringing Assignment
Flexible Night Ringing Assignment
Toll Restriction—Class Assignment
Toll Restriction—Area Code Selection
Programmable Operator Call
Host PBX Access Codes Assignment
Automatic Answering (Automatic/Manual) Selection

Preferred CO Line Assignment

Programmable Call Waiting
Duration Time Count Start Mode
SMDR Communication Parameters
System Data Dump
SMDR Incoming/Outgoing Selection
Hookswitch Flash Timing
Disconnect Time
Calling Party Control (CPC) Signal
Intercom Alerting Mode
Programmable Doorphone
Dial Call Pickup Group Assignment
Account Code Input Mode
Delayed Ringing Assignment
Delayed Ringing Count Selection
DSS Console Assignment

Hold Time Reminder

Hold Recall Time Set
Programmable External Paging Access Tone
DTMF Receiver
Programmable Toll Prefix
Programmable Secret Speed Dial
Programmable Directory Assistance
DSS Button Mode
Transfer Recall Time
M3/FWD Selection

B. Station Program Clear:

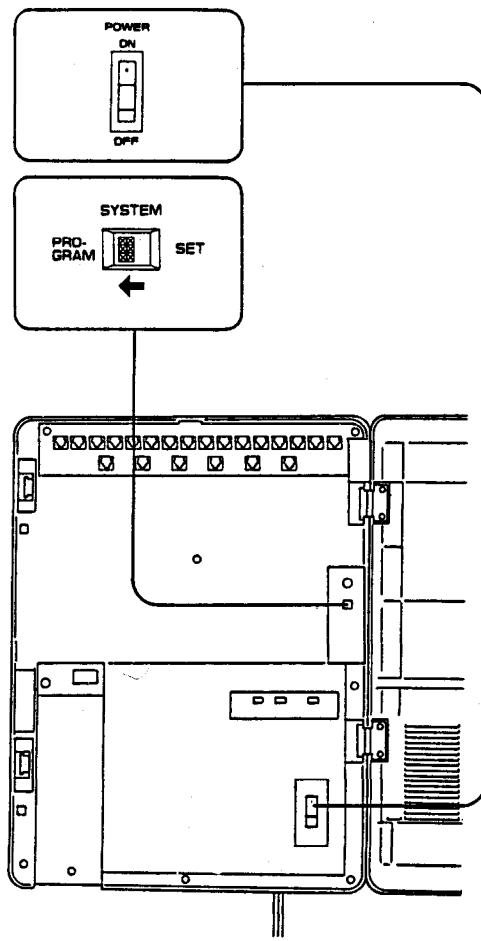
- 1 Dial (98).
 - "EXT CLEAR" will be displayed.
- 2 Press the NEXT button.
 - "ALL CLEAR?" will be displayed.
- 3 Press the MEMORY button to clear the system.
- 4 To exit from station clear, press the END button.

The following features are preset as the default data.

One Touch Dialing
Background Music
Call Forwarding
Data Line Security
Dial Call Pickup Deny
Do not Disturb
Auto CO Hunting
Pickup dial
Flexible CO Button
Flexible DSS Button

Example of Programming

1. Turn the Power Switch to ON



2. Set the System Program Switch to PROGRAM

The LCD on the KX-T61630 will show "ENTER PGM CODE".

- Be sure the handset of extension 11 is in the cradle and the speakerphone button off.

3. To program automatic line access number 9 and the phone number 987-654-3210 speed access code 00.

<i>KX-T61630 at extension 11 (Extension 11 must be a KX-T61630.)</i>	
1. Dial (01) or press the AUTO button.	Display SPEED DIALING
2. Press the NEXT button.	ENTER SPEED CODE
3. Dial (00) or press the NEXT button.	<ul style="list-style-type: none"> • If nothing is stored in access code "00", 00: NOT STORED • If already stored the automatic line access number 9 and the phone number 123-456-7890, 00: -123-456-7890
4. ① Dial "9". ② Press “—” button. ③ Dial "987". ④ Press “—” button. ⑤ Dial "654". ⑥ Press “—” button. ⑦ Dial "3210".	00: -987-654-3210
5. Press the MEMORY button.	00: -987-654-3210
6. • To program the next access code, press the NEXT button. • To program a desired access code, press the SELECT button and then dial the number.	
7. Repeat step 4 to 6.	
8. To return to the initial program mode, press the END button.	ENTER PGM CODE

4. Return the System Program Switch to SET

- To make program change, start from the beginning.

While programming if a mistake is made,

1. Press the "END" button.
2. Start programming procedure from the beginning.

• You will hear a beep after pressing the MEMORY button.

• The MEMORY indicator light will go on when the MEMORY button is pressed, and then the Indicator light will go out when the NEXT or PREV button is pressed.

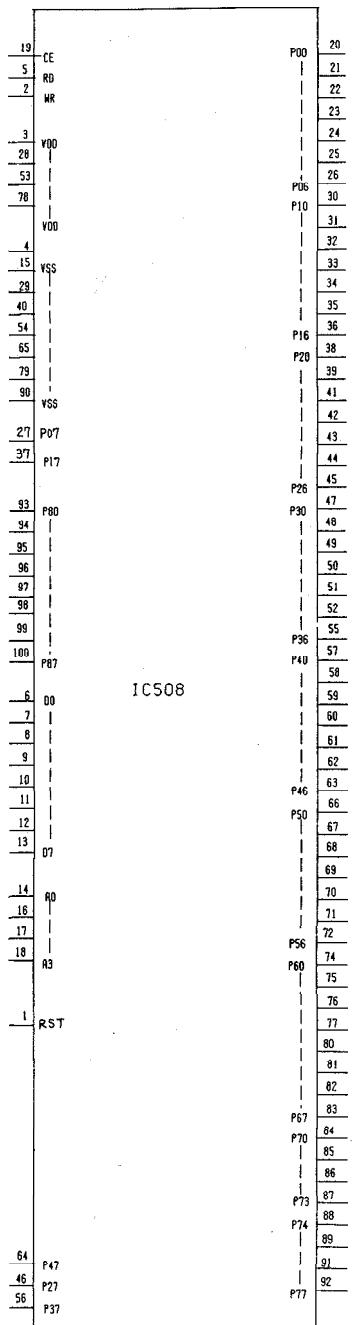
■ PROGRAMMING TABLE

TO SET	PROGRAM ADDRESS	STEPS REQUIRED TO CHANGE PROGRAM																																								
Toll Restriction— Area Code Selection	[12]	<p>[NEXT] [SELECT] [AB] [C] [MEMORY] [END]</p> <p style="text-align: center;">[area code with 3 digits] Memory location number</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"></td> <td colspan="10" style="text-align: center;"><i>Memory location number</i></td> </tr> <tr> <td></td> <td>00</td><td>01</td><td>02</td><td>03</td><td>04</td><td>05</td><td>06</td><td>07</td><td>08</td><td>09</td> </tr> <tr> <td style="text-align: center;"><i>Area code entry</i></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>		<i>Memory location number</i>											00	01	02	03	04	05	06	07	08	09	<i>Area code entry</i>																	
	<i>Memory location number</i>																																									
	00	01	02	03	04	05	06	07	08	09																																
<i>Area code entry</i>																																										
Programmable Toll Prefix	[13]	<p>[NEXT] [SELECT] [MEMORY] [END]</p> <p style="text-align: center;">----- WITH I/ WITHOUT I</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"></td> <td style="width: 20%; text-align: center;"><i>Default</i></td> <td style="width: 60%; text-align: center;"><i>To make program change</i></td> </tr> <tr> <td>With I</td> <td style="text-align: center;">X</td> <td></td> </tr> <tr> <td>Without I</td> <td></td> <td></td> </tr> </table>		<i>Default</i>	<i>To make program change</i>	With I	X		Without I																																	
	<i>Default</i>	<i>To make program change</i>																																								
With I	X																																									
Without I																																										
Programmable Operator Call	[14]	<p>[NEXT] [NEXT] [SELECT] [MEMORY] [END]</p> <p style="text-align: center;">----- ENABLE/DISABLE ----- until the desired extension number appears</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"></td> <td style="width: 20%; text-align: center;"><i>Default</i></td> <td style="width: 60%; text-align: center;"><i>To make program change</i></td> </tr> <tr> <td>Extensions</td> <td style="text-align: center;">all extensions</td> <td style="text-align: center;">11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26</td> </tr> <tr> <td>Enable</td> <td style="text-align: center;">X</td> <td></td> </tr> <tr> <td>Disable</td> <td></td> <td></td> </tr> </table>		<i>Default</i>	<i>To make program change</i>	Extensions	all extensions	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	Enable	X		Disable																														
	<i>Default</i>	<i>To make program change</i>																																								
Extensions	all extensions	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26																																								
Enable	X																																									
Disable																																										
Programmable Directory Assistance	[15]	<p>[NEXT] [SELECT] [MEMORY] [END]</p> <p style="text-align: center;">----- NO RESTRICT/RESTRICT</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"></td> <td style="width: 20%; text-align: center;"><i>Default</i></td> <td style="width: 60%; text-align: center;"><i>To make program change</i></td> </tr> <tr> <td>No restrict</td> <td style="text-align: center;">X</td> <td></td> </tr> <tr> <td>Restrict</td> <td></td> <td></td> </tr> </table>		<i>Default</i>	<i>To make program change</i>	No restrict	X		Restrict																																	
	<i>Default</i>	<i>To make program change</i>																																								
No restrict	X																																									
Restrict																																										
Automatic Answering (Automatic/ Manual) Selection	[16]	<p>[NEXT] [NEXT] [SELECT] [MEMORY] [END]</p> <p style="text-align: center;">----- AUTO ANSWER/MAN ANSWER ----- until the desired extension number appears</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"></td> <td style="width: 20%; text-align: center;"><i>Default</i></td> <td style="width: 60%; text-align: center;"><i>To make program change</i></td> </tr> <tr> <td>Extensions</td> <td style="text-align: center;">all extensions</td> <td style="text-align: center;">11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26</td> </tr> <tr> <td>Automatic</td> <td style="text-align: center;">X</td> <td></td> </tr> <tr> <td>Manual</td> <td></td> <td></td> </tr> </table>		<i>Default</i>	<i>To make program change</i>	Extensions	all extensions	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	Automatic	X		Manual																														
	<i>Default</i>	<i>To make program change</i>																																								
Extensions	all extensions	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26																																								
Automatic	X																																									
Manual																																										
Host PBX Access Codes Assignment	[17]	<p>[NEXT] [NEXT] [A...D] [MEMORY] [END]</p> <p style="text-align: center;">----- up to four outside access codes each with a maximum of 2 digits ----- until the desired CO numbers appears</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"></td> <td colspan="4" style="text-align: center;"><i>Outside access codes of the host PBX</i></td> </tr> <tr> <td>CO</td> <td></td><td></td><td></td><td></td> </tr> <tr> <td>1</td> <td></td><td></td><td></td><td></td> </tr> <tr> <td>2</td> <td></td><td></td><td></td><td></td> </tr> <tr> <td>3</td> <td></td><td></td><td></td><td></td> </tr> <tr> <td>4</td> <td></td><td></td><td></td><td></td> </tr> <tr> <td>5</td> <td></td><td></td><td></td><td></td> </tr> <tr> <td>6</td> <td></td><td></td><td></td><td></td> </tr> </table>		<i>Outside access codes of the host PBX</i>				CO					1					2					3					4					5					6				
	<i>Outside access codes of the host PBX</i>																																									
CO																																										
1																																										
2																																										
3																																										
4																																										
5																																										
6																																										

TO SET	PROGRAM ADDRESS	STEPS REQUIRED TO CHANGE PROGRAM																					
SMDR Communication Parameters		<p>(Stop bit length)</p> <p>[NEXT][SELECT][MEMORY] ----- 1 BIT/2 BITS</p> <table border="1" data-bbox="461 361 1191 451"> <thead> <tr> <th></th> <th>Default</th> <th>To make program change</th> </tr> </thead> <tbody> <tr> <td>1 BIT</td> <td>x</td> <td></td> </tr> <tr> <td>2 BITS</td> <td></td> <td></td> </tr> </tbody> </table> <p>(Page length)</p> <p>[NEXT][AB][MEMORY] ----- 4 through 99 lines</p> <table border="1" data-bbox="461 601 1191 669"> <thead> <tr> <th></th> <th>Default</th> <th>To make program change</th> </tr> </thead> <tbody> <tr> <td>Lines per page</td> <td>66</td> <td></td> </tr> </tbody> </table> <p>(Skip perforation)</p> <p>[NEXT][AB][MEMORY][END] ----- 0 through 95 lines</p> <table border="1" data-bbox="461 804 1191 893"> <thead> <tr> <th></th> <th>Default</th> <th>To make program change</th> </tr> </thead> <tbody> <tr> <td>Skipping lines</td> <td>0</td> <td></td> </tr> </tbody> </table>		Default	To make program change	1 BIT	x		2 BITS				Default	To make program change	Lines per page	66			Default	To make program change	Skipping lines	0	
	Default	To make program change																					
1 BIT	x																						
2 BITS																							
	Default	To make program change																					
Lines per page	66																						
	Default	To make program change																					
Skipping lines	0																						
System Data Dump	[28]	<ul style="list-style-type: none"> •SYSTEM PARA •SPEED DIAL •ALL PARA •STOP OUTPUT <p>[NEXT][SELECT][MEMORY][END] ----- SYSTEM PARA/CO PARA/EXT PARA/SPEED DIAL ALL PARA/STOP OUTPUT</p> <p>•CO PARA</p> <p>[NEXT][SELECT][MEMORY][A][END] ----- dial CO number ----- until the CO PARA appears</p> <p>•EXT PARA</p> <p>[NEXT][SELECT][MEMORY][AB][END] ----- dial extension number ----- until the EXT PARA appears</p>																					
SMDR Incoming/Outgoing Selection	[29]	<p>[NEXT][SELECT][MEMORY][NEXT][SELECT][MEMORY][END] ----- OUTGOING: ON/OFF ----- INCOMING: ON/OFF</p> <table border="1" data-bbox="461 1664 1191 1792"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">Outgoing</th> <th colspan="2">Incoming</th> </tr> <tr> <th>ON</th> <th>OFF</th> <th>ON</th> <th>OFF</th> </tr> </thead> <tbody> <tr> <td>Default</td> <td>x</td> <td></td> <td>x</td> <td></td> </tr> <tr> <td>To make program change</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Outgoing		Incoming		ON	OFF	ON	OFF	Default	x		x		To make program change						
	Outgoing			Incoming																			
	ON	OFF	ON	OFF																			
Default	x		x																				
To make program change																							

TO SET	PROGRAM ADDRESS	STEPS REQUIRED TO CHANGE PROGRAM																																																																							
DSS Button Mode	[37]	[NEXT] [SELECT] [MEMORY] [END] ----- WITHOUT TRANSFER/WITH TRANSFER																																																																							
		<table border="1"> <thead> <tr> <th></th> <th><i>Default</i></th> <th colspan="2"><i>To make program change</i></th> </tr> </thead> <tbody> <tr> <td>Without transfer</td> <td>x</td> <td colspan="2"></td> </tr> <tr> <td>With transfer</td> <td></td> <td colspan="2"></td> </tr> </tbody> </table>					<i>Default</i>	<i>To make program change</i>		Without transfer	x			With transfer																																																											
	<i>Default</i>	<i>To make program change</i>																																																																							
Without transfer	x																																																																								
With transfer																																																																									
DTMF Receiver Check	[38]	[NEXT] [SELECT] [MEMORY] [END] ----- ENABLE/DISABLE ----- until the desired DTMF receiver appears																																																																							
		<table border="1"> <thead> <tr> <th></th> <th><i>Default</i></th> <th colspan="2"><i>To make program change</i></th> </tr> </thead> <tbody> <tr> <td>DTMF receiver</td> <td>1, 2</td> <td>1</td> <td>2</td> </tr> <tr> <td>Enable</td> <td>x</td> <td colspan="2"></td> </tr> <tr> <td>Disable</td> <td></td> <td colspan="2"></td> </tr> </tbody> </table>					<i>Default</i>	<i>To make program change</i>		DTMF receiver	1, 2	1	2	Enable	x			Disable																																																							
	<i>Default</i>	<i>To make program change</i>																																																																							
DTMF receiver	1, 2	1	2																																																																						
Enable	x																																																																								
Disable																																																																									
Transfer Recall Time	[39]	[NEXT] [SELECT] [MEMORY] [END] ----- 30 SEC/15 SEC																																																																							
		<table border="1"> <thead> <tr> <th></th> <th><i>Default</i></th> <th colspan="2"><i>To make program change</i></th> </tr> </thead> <tbody> <tr> <td>30 sec</td> <td>x</td> <td colspan="2"></td> </tr> <tr> <td>15 sec</td> <td></td> <td colspan="2"></td> </tr> </tbody> </table>					<i>Default</i>	<i>To make program change</i>		30 sec	x			15 sec																																																											
	<i>Default</i>	<i>To make program change</i>																																																																							
30 sec	x																																																																								
15 sec																																																																									
M3/FWD Selection	[40]	[NEXT][NEXT][SELECT][MEMORY][END] -----FEATURE KEY/FWD, DND KEY ----- until the desired extension number appears																																																																							
		<table border="1"> <thead> <tr> <th></th> <th><i>Default</i></th> <th colspan="14"><i>To make program change</i></th> </tr> </thead> <tbody> <tr> <td>Extensions</td> <td>all extensions</td> <td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td> </tr> <tr> <td>Feature key</td> <td>x</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>FWD/DND key</td> <td></td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table>					<i>Default</i>	<i>To make program change</i>														Extensions	all extensions	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Feature key	x																FWD/DND key																
	<i>Default</i>	<i>To make program change</i>																																																																							
Extensions	all extensions	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26																																																								
Feature key	x																																																																								
FWD/DND key																																																																									
Station Program Clear	[98]	[NEXT][MEMORY][END]																																																																							
System Clear	[99]	[NEXT][MEMORY][END]																																																																							

IC I/O DATA

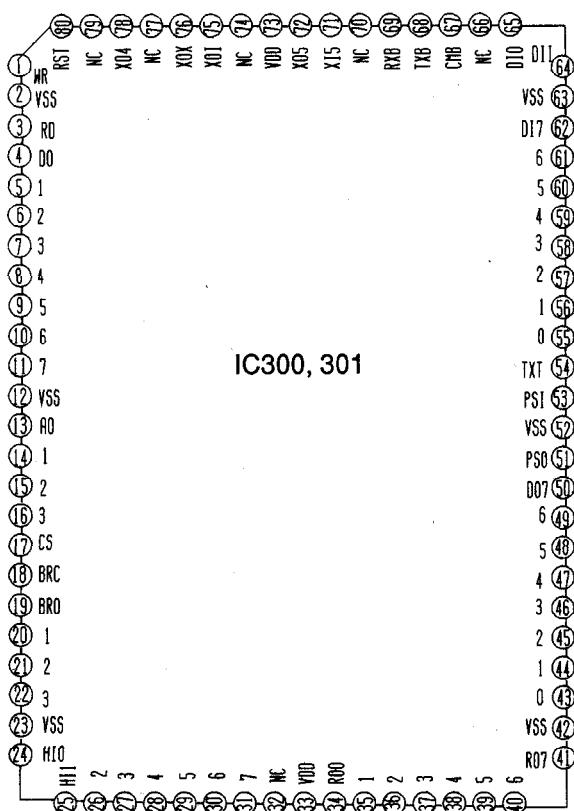


IC508

Port	Pin No.	I/O	Signal Name	High Imp.	High Level	Low Level	Remarks
P00	20	O	SH1: CO Amp Shunt Control	Non Shunt	Non Shunt	Shunt	
P01	21	O	MT1: CO Amp Mute Contol	Mute	Mute	Non Mute	
P02	22	O	HD1: CO Amp Hold Tone Control	Non Transmission	Non Transmission	Transmission	
P03	23	O	CF1: CO Amp Conference	Non Conference	Non Conference	Conference	
P04	24	O	DL1: Line Close, Dial Transmission	Break	Break	Make	
P05	25	O	DS1: Spark Erase Relay Control	Break	Break	Make	(RSVD)
P06	26	I	BELL1: Bell, CPC Input	----	No Bell, Line Break	Bell, Line Make	
P07	27	I	SID: DTMF Signal Detection 1	----	----	----	
P10	30	O	SH2: CO Amp Shunt Control	Non Shunt	Non Shunt	Shunt	
P11	31	O	MT2: CO Amp Mute Contol	Mute	Mute	Non Mute	
P12	32	O	HD2: CO Amp Hold Tone Control	Non Transmission	Non Transmission	Transmission	
P13	33	O	CF2: CO Amp Conference	Non Conference	Non Conference	Conference	
P14	34	O	DL2: Line Close, Dial Transmission	Break	Break	Make	
P15	35	O	DS2: Spark Erase Relay Control	Break	Break	Make	(RSVD)
P16	36	I	BELL2: Bell, CPC Input	----	No Bell, Line Break	Bell, Line Make	
P17	37	I	SID: DTMF Signal Detection 2	----	----	----	
P20	38	O	SH3: CO Amp Shunt Control	Non Shunt	Non Shunt	Shunt	
P21	39	O	MT3: CO Amp Mute Contol	Mute	Mute	Non Mute	
P22	41	O	HD3: CO Amp Hold Tone Control	Non Transmission	Non Transmission	Transmission	
P23	42	O	CF3: CO Amp Conference	Non Conference	Non Conference	Conference	
P24	43	O	DL3: Line Close, Dial Transmission	Break	Break	Make	
P25	44	O	DS3: Spark Erase Relay Control	Break	Break	Make	(RSVD)
P26	45	I	BELL3: Bell, CPC Input	----	No Bell, Break	Bell, Make	
P27	46	O	DAY: Day Mode LED Control	Lights-out	Lights-out	Lighting	
P30	47	O	SH4: CO Amp Shunt Control	Non Shunt	Non Shunt	Shunt	
P31	48	O	MT4: CO Amp Mute Contol	Mute	Mute	Non Mute	
P32	49	O	HD4: CO Amp Hold Tone Control	Non Transmission	Non Transmission	Transmission	
P33	50	O	CF4: CO Amp Conference	Non Conference	Non Conference	Conference	
P34	51	O	DL4: Line Close, Dial Transmission	Break	Break	Make	
P35	52	O	DS4: Spark Erase Relay Control	Break	Break	Make	(RSVD)
P36	55	I	BELL4: Bell, CPC Input	----	No Bell, Line Break	Bell, Line Make	
P37	56	O	NIGHT: Night Mode LED Control	Lights-out	Lights-out	Lighting	
P40	57	O	SH5: CO Amp Shunt Control	Non Shunt	Non Shunt	Shunt	
P41	58	O	MT5: CO Amp Mute Contol	Mute	Mute	Non Mute	
P42	59	O	HD5: CO Amp Hold Tone Control	Non Transmission	Non Transmission	Transmission	
P43	60	O	CF5: CO Amp Conference	Non Conference	Non Conference	Conference	
P44	61	O	DL5: Line Close, Dial Transmission	Break	Break	Make	
P45	62	O	DS5: Spark Erase Relay Control	Break	Break	Make	(RSVD)
P46	63	I	BELL5: Bell, CPC Input	----	No Bell, Line Break	Bell, Line Make	
P47	64	O	PD RLY: Power Failure Control	Break	Break	Make	
P50	66	O	SH6: CO Amp Shunt Control	Non Shunt	Non Shunt	Shunt	
P51	67	O	MT6 CO Amp Mute Contol	Mute	Mute	Non Mute	
P52	68	O	HD6: CO Amp Hold Tone Control	Non Transmission	Non Transmission	Transmission	
P53	69	O	CF6: CO Amp Conference	Non Conference	Non Conference	Conference	
P54	70	O	DL6: Line Close, Dial Transmission	Break	Break	Make	
P55	71	O	DS6: Spark Erase Relay Control	Break	Break	Make	(RSVD)
P56	72	I	BELL6: Bell, CPC Input	----	No Bell, Line Break	Bell, Line Make	
P57	73	—	Not Used	----	----	----	
P60	74	O	TA0: Cross Point Data	Data Low	Data Low	Data High	
P61	75	O	TA1: Cross Point Data	Data Low	Data Low	Data High	
P62	76	O	TA2: Cross Point Data	Data Low	Data Low	Data High	
P63	77	O	TA3: Cross Point Data	Data Low	Data Low	Data High	
P64	78	O	TA4: Cross Point Data	Data Low	Data Low	Data High	
P65	81	O	TA5: Cross Point Data	Data Low	Data Low	Data High	
P66	82	O	TA6: Cross Point Data	Data Low	Data Low	Data High	
P67	83	O	TA7: Cross Point Data	Data Low	Data Low	Data High	

IC508

Port	Pin No.	I/O	Signal Name	High Imp.	High Level	Low Level	Remarks
P70	84	O	A: Cross Point Address	Address Low	Address Low	Address High	
P71	85	O	B: Cross Point Address	Address Low	Address Low	Address High	
P72	86	O	C: Cross Point Address	Address Low	Address Low	Address High	
P73	87	O	D: Cross Point Address	Address Low	Address Low	Address High	
P74	88	O	STB1: Cross Point Strobe	Strobe Low	Strobe Low	Strobe High	
P75	89	O	STB2: Cross Point Strobe	Strobe Low	Strobe Low	Strobe High	
P76	91	O	STB3: Cross Point Strobe	Strobe Low	Strobe Low	Strobe High	
P77	92	O	STB4: Cross Point Strobe	Strobe Low	Strobe Low	Strobe High	
P80	93	O	ROW1: PB Signal Generator, 1 Line	Uncertainty	High	Low	
P81	94	O	ROW2: PB Signal Generator, 2 Line	Uncertainty	High	Low	
P82	95	O	ROW3: PB Signal Generator, 3 Line	Uncertainty	High	Low	
P83	96	O	ROW4: PB Signal Generator, 4 Line	Uncertainty	High	Low	
P84	97	O	COL1: PB Signal Generator, 1 Row	Uncertainty	High	Low	
P85	98	O	COL2: PB Signal Generator, 2 Row	Uncertainty	High	Low	
P86	99	O	COL3: PB Signal Generator, 3 Row	Uncertainty	High	Low	
P87	100	O	COL4: PB Signal Generator, 4 Row	Uncertainty	High	Low	

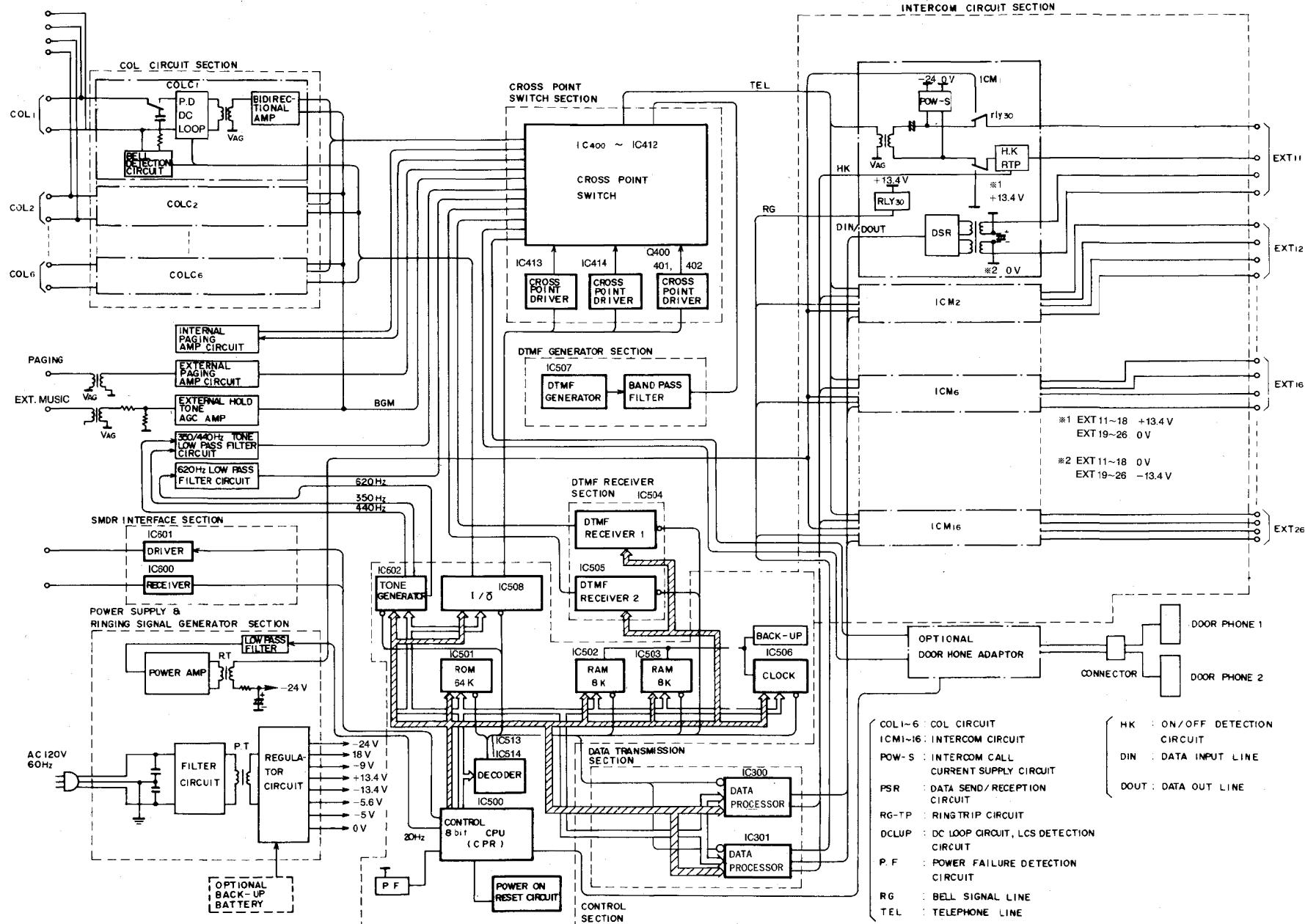


1	VSS	E	64
2	XTAL	RD	63
3	EXTAL	WR	62
4	MPO	R/W	61
5	PP1	LIR	60
6	RES	BA	59
7	STBY	DO	58
8	NMI	1	57
9	P20	2	56
10	P21	3	55
11	P22	4	54
12	RX	5	53
13	TX	6	52
14	P25	7	51
15	P26	80	50
16	P27	1	49
17	P50	2	48
18	IRQ2	3	47
19	P52	4	46
20	HALT	5	45
21	P54	6	44
22	P55	7	43
23	P56	VSS	42
24	P57	A8	41
25	P60	9	40
26	—	10	39
27	—	11	38
28	—	12	37
29	—	13	36
30	—	14	35
31	—	15	34
32	P67	VCC	33

IC500

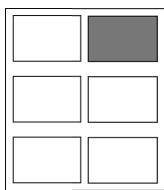
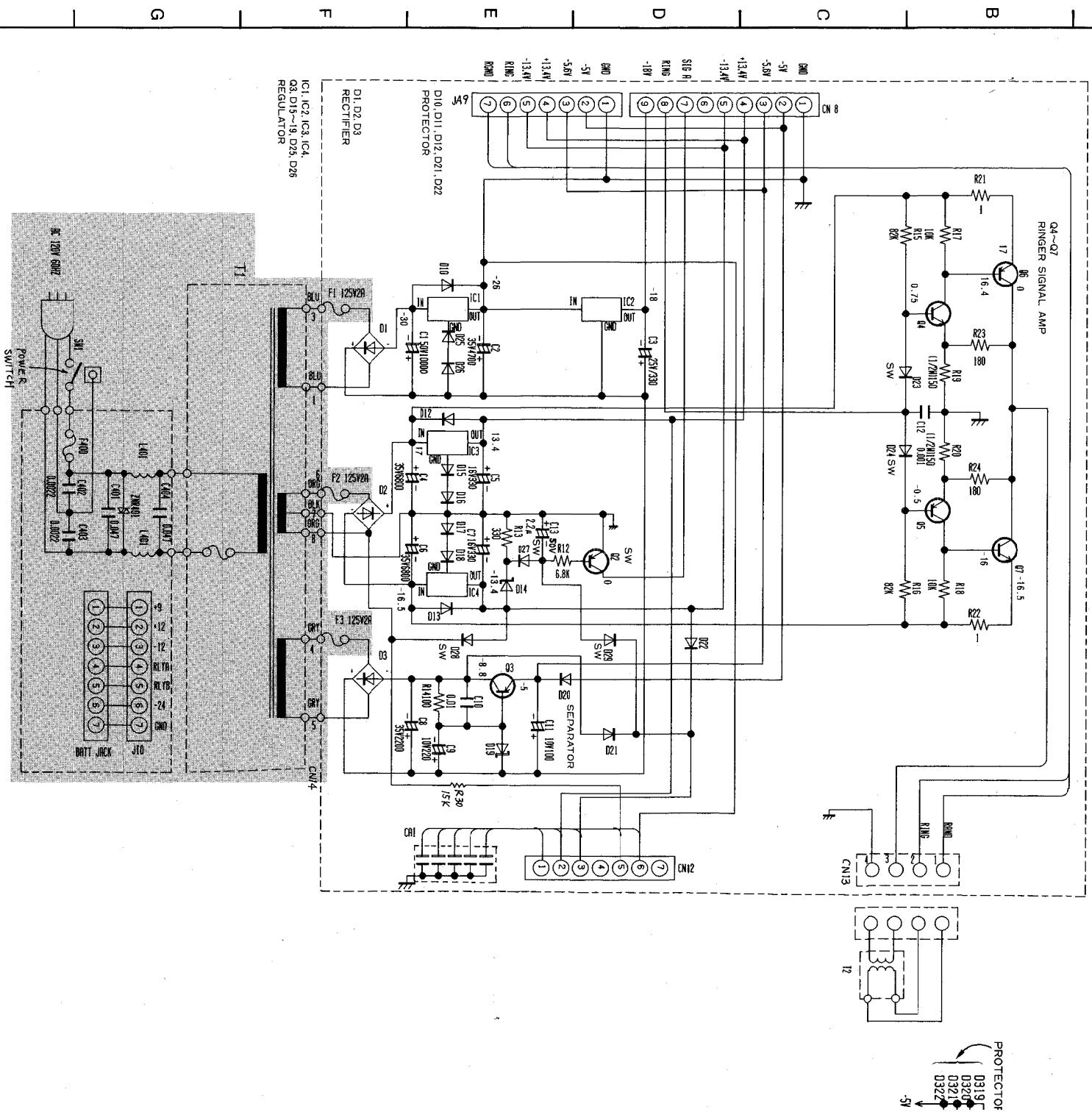
Port	Pin No.	I/O	Signal Name	High Imp.	High Level	Low Level	Remarks
NMI	8	I	CPU Restart	—	—	—	
P20	9	I	OL1: EXT. Over Current Detection (-)	—	Normal	Over Current	EXT. 19-26
P21	10	I	OL2: EXT. Over Current Detection (+)	—	Over Current	Normal	EXT. 11-18
P22	11	O	BRK1: EXT. Over Current Protection (-)	Break	Break	ON	EXT. 19-26
RX	12	I	RXD	—	—	—	
TX	13	O	TXD	—	—	—	
P25	14	O	BRK2: EXT. Over Current Protection (+)	Break	Break	ON	EXT. 11-18
P26	15	O	BUSY1: Doorphone 1 ON/OFF Control	OFF	OFF	ON	
P27	16	O	BUSY2: Doorphone 2 ON/OFF Control	OFF	OFF	ON	
P50	17	—	—	—	—	—	
IRQ2	18	I	PFD: Power Down Detection	—	Power Down	Normal	
P52	19	I	DROPT: Doorphone Adaptor Connect Detection	Non-Connect	Connect		
HALT	20	I	HALT: Halt Control Input	Normal	Power Down		
P54	21	I	DHK1: Doorphone 1 Hook Detection	On-Hook	Off-Hook		
P55	22	I	DHK2: Doorphone 2 Hook Detection	On-Hook	Off-Hook		
P56	23	I	CNCT1: Doorphone 1 Connect Detection	Connect	Non-Connect		
P57	24	I	CNCT2: Doorphone 2 Connect Detection	Connect	Non-Connect		
P60	25	—	—	—	—	—	
P61	26	O	BANK: Bank Select Control	—	—	—	
P62	27	I	CTS	—	—	—	
P63	28	—	—	—	—	—	
P64	29	I	DSR	—	—	—	
P65	30	I	DTR	—	—	—	
P66	31	O	PF: Power Down Control	—	Power Down	Normal	
P67	32	O	20Hz: Bell Signal Output	—	—	—	

BLOCK DIAGRAM



TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

<p>PQVITA7924 PQVITA7812AF</p>	<p>AN7912T</p>	<p>PQVIH63B03XP</p>	<p>PQVITC7H04P PQVITC7H08P PQVIHD75188P PQVIHD75189P</p>	<p>PQVINJM4558M</p>
<p>PQVITC4066BF</p>	<p>PQVITD62706P PQVITC7H139P PQVITC7H138P</p>	<p>PQVIPC79M18F</p>	<p>PQVIHM6264LA PQWIT61610M2</p>	<p>PQVI671152F</p>
<p>PQVI63HB110</p>		<p>PQVINJM4558D</p>		<p>PQVIMT8870BC</p>
<p>PQVILR4089 PQVIBU3140</p>	<p>PQVIMS6242BS</p>	<p>2SA1626</p>	<p>2SB1015 2SD1406</p>	
<p>2SB834 2SC2590</p>	<p>2SA881, 2SB644 2SC2673, 2SD639</p>	<p>DTA124EA DTA124XA DTA143A DTA144A 2SA937 2SC2021 PQVTDTC114Y</p>	<p>2SC2878</p>	
<p>PQVD2B4B41 PQVD3B4B41</p>	<p>Anode Cathode</p>	<p>Anode Cathode</p>	<p>1SS131 1SR35-200 MA4030 PQVDHZS2B1 PQVD1SV124</p>	<p>Anode Cathode</p>
<p>PQVDEK03</p>	<p>PQVDS1YB40F1</p>	<p>Anode Cathode</p>	<p>LN220RPH LN320GPH LN420YPH</p>	<p>MA1056 MA4036 MA4047 MA4062 MA4091</p>



SCHEMATIC DIAGRAM

7

8

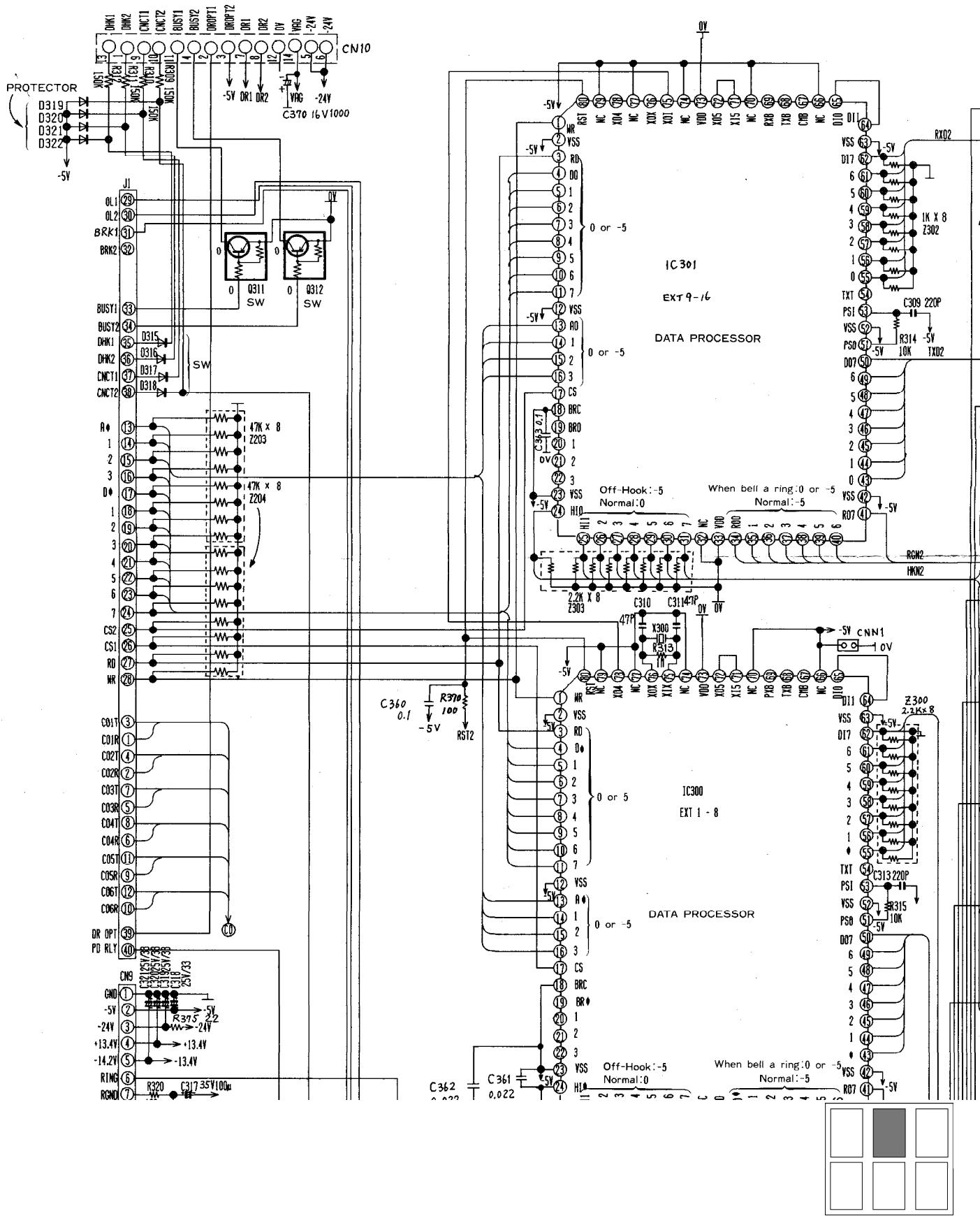
9

10

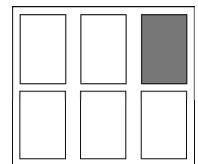
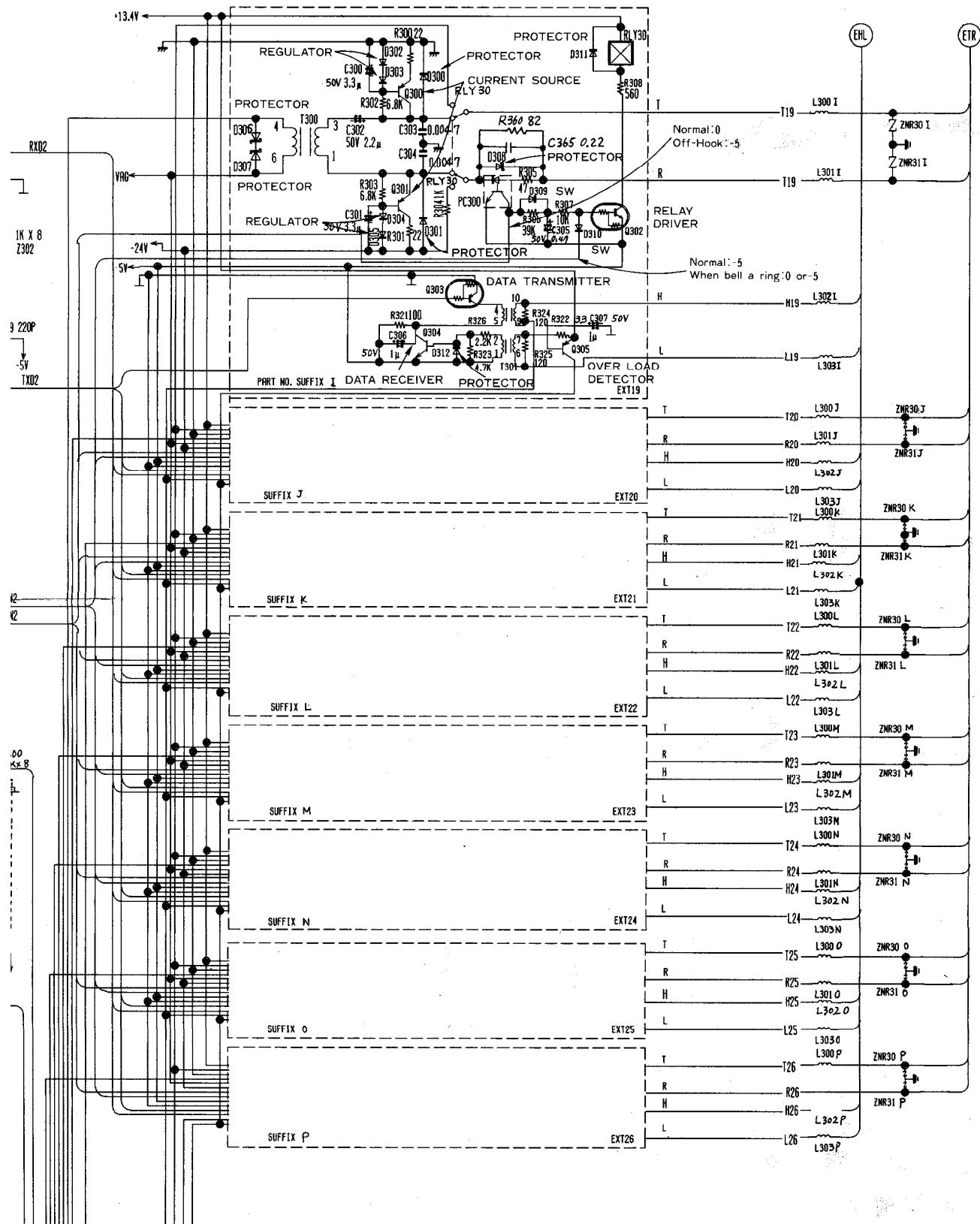
11

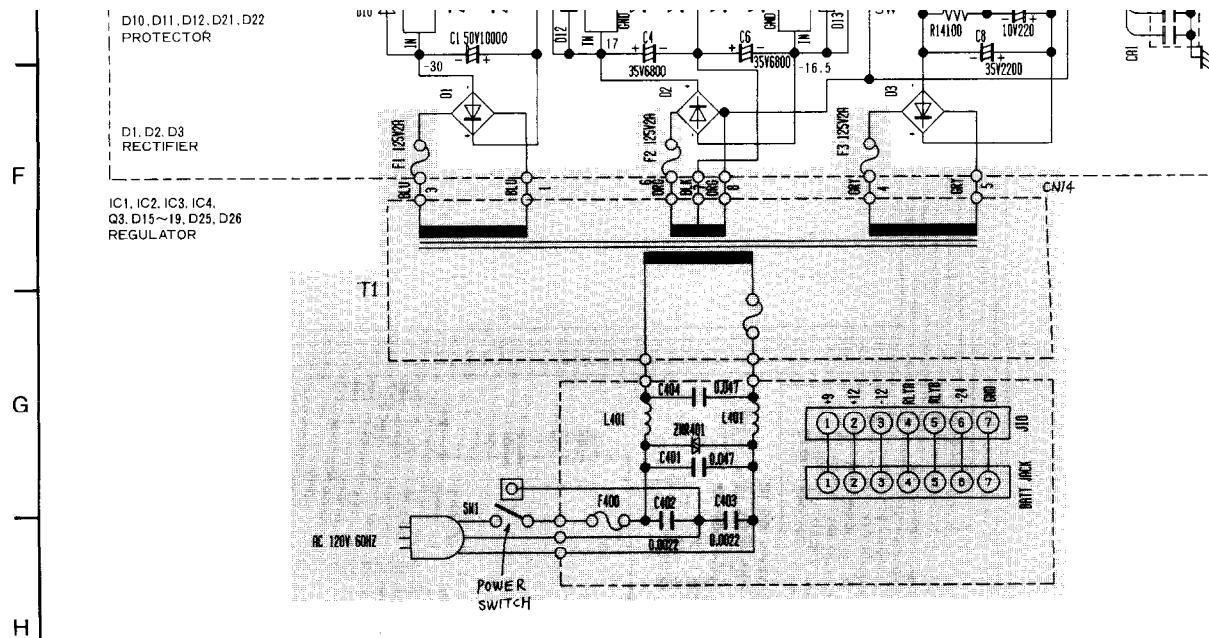
12

MA



MAIN-A BOARD





Notes:

1. DC voltage measurements are taken with electronic voltmeter and oscilloscope from ground line.

(•Power Switch ON condition)
 •Voltage Value: V

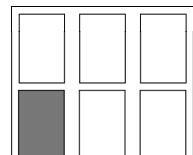
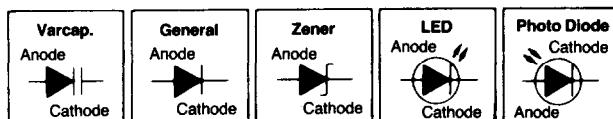
2. This schematic diagram may be modified at any time with the development of new technology.

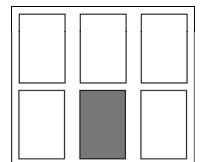
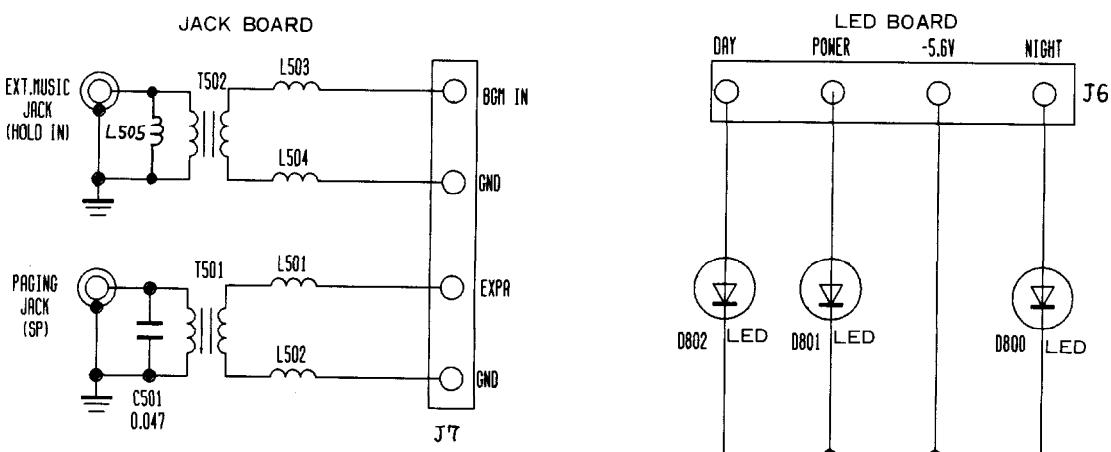
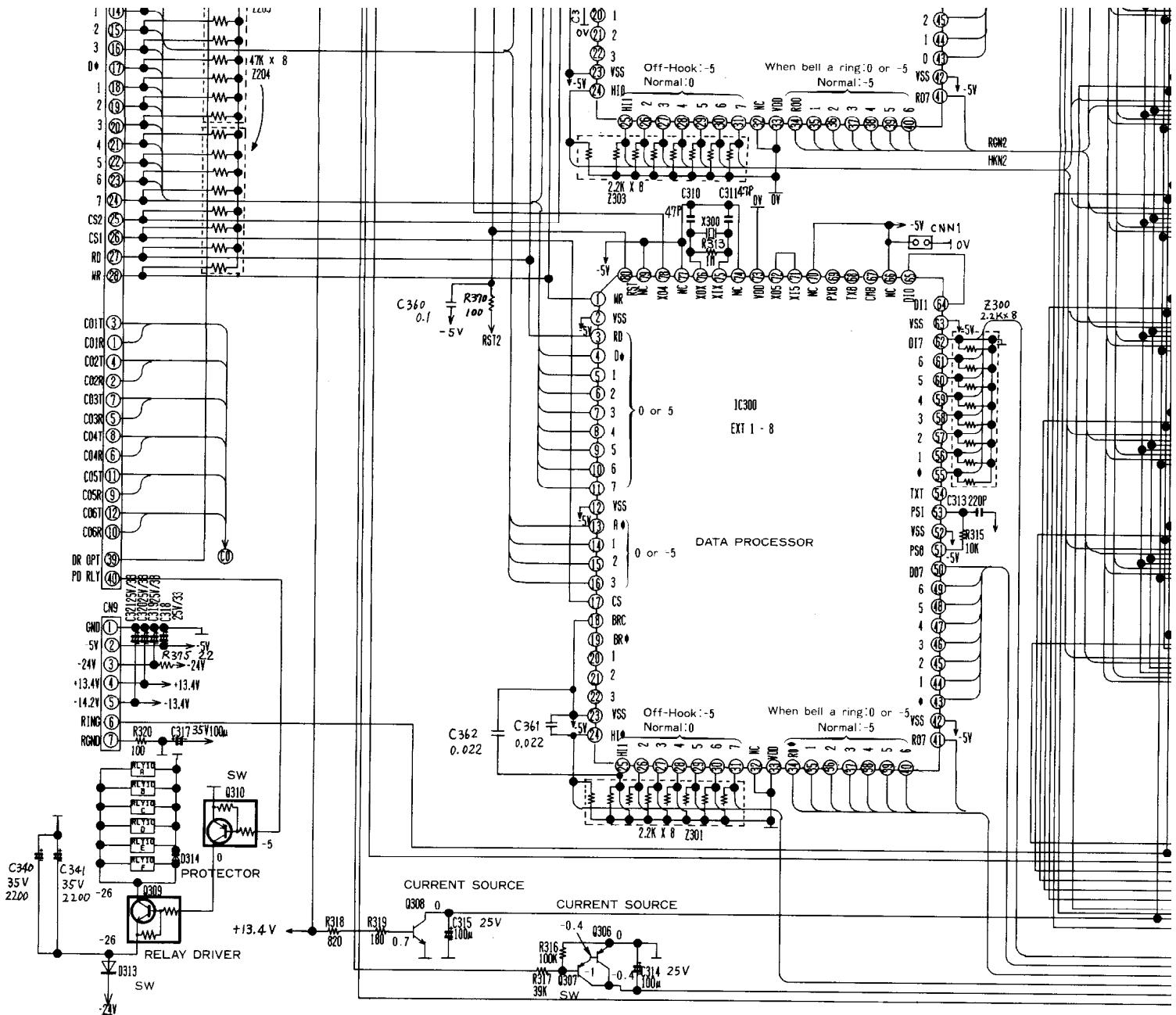
3.

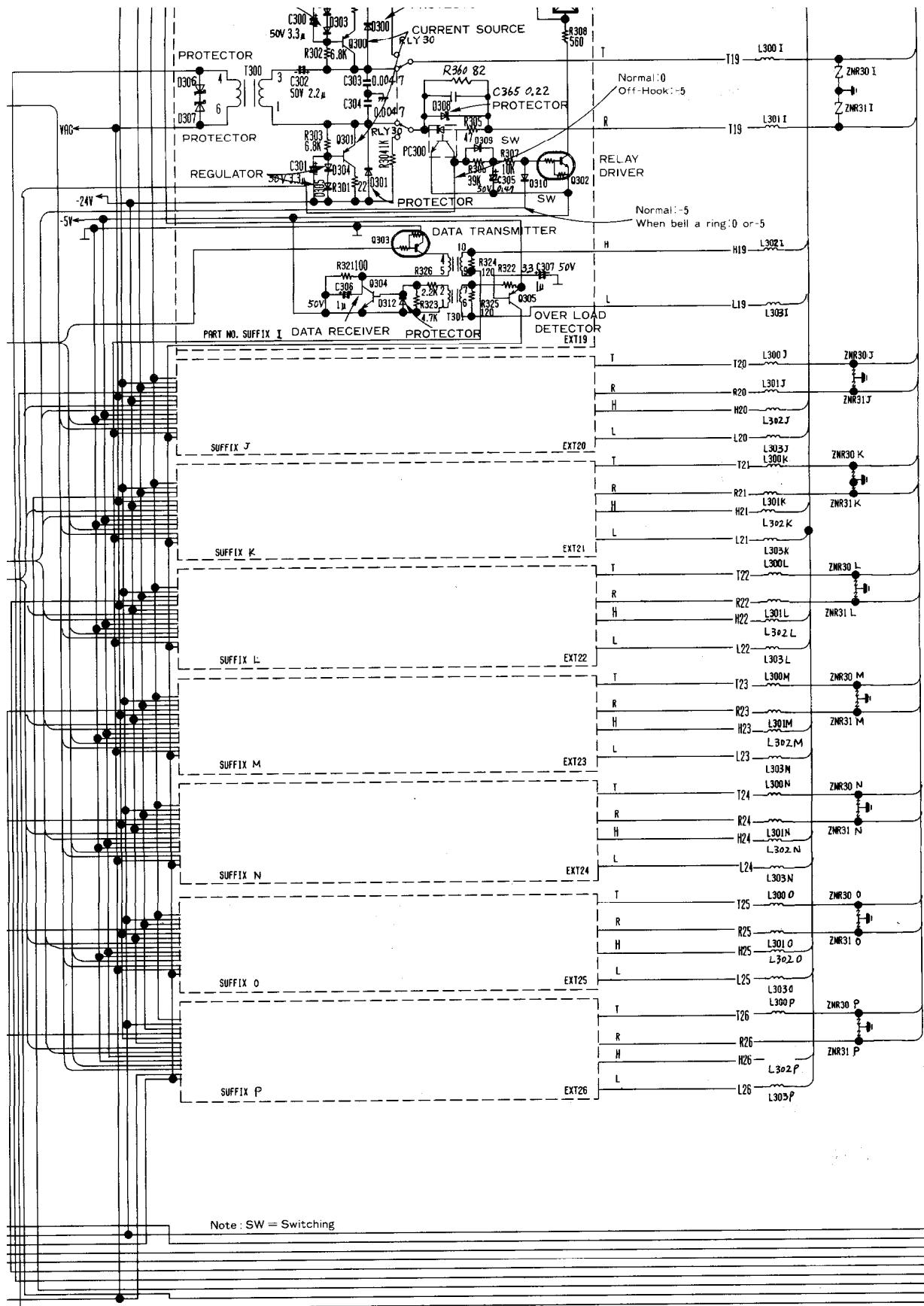
Important safety notice

The shaded area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards. When servicing it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.

4.



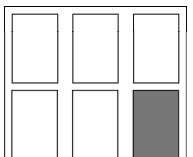




BELL

EXT 26 - 19

ONOL
TXDI
RCM1
HKN1
BRK1
DL1



1 | 2 | 3 | 4 | 5 | 6 | 7

A

B

C

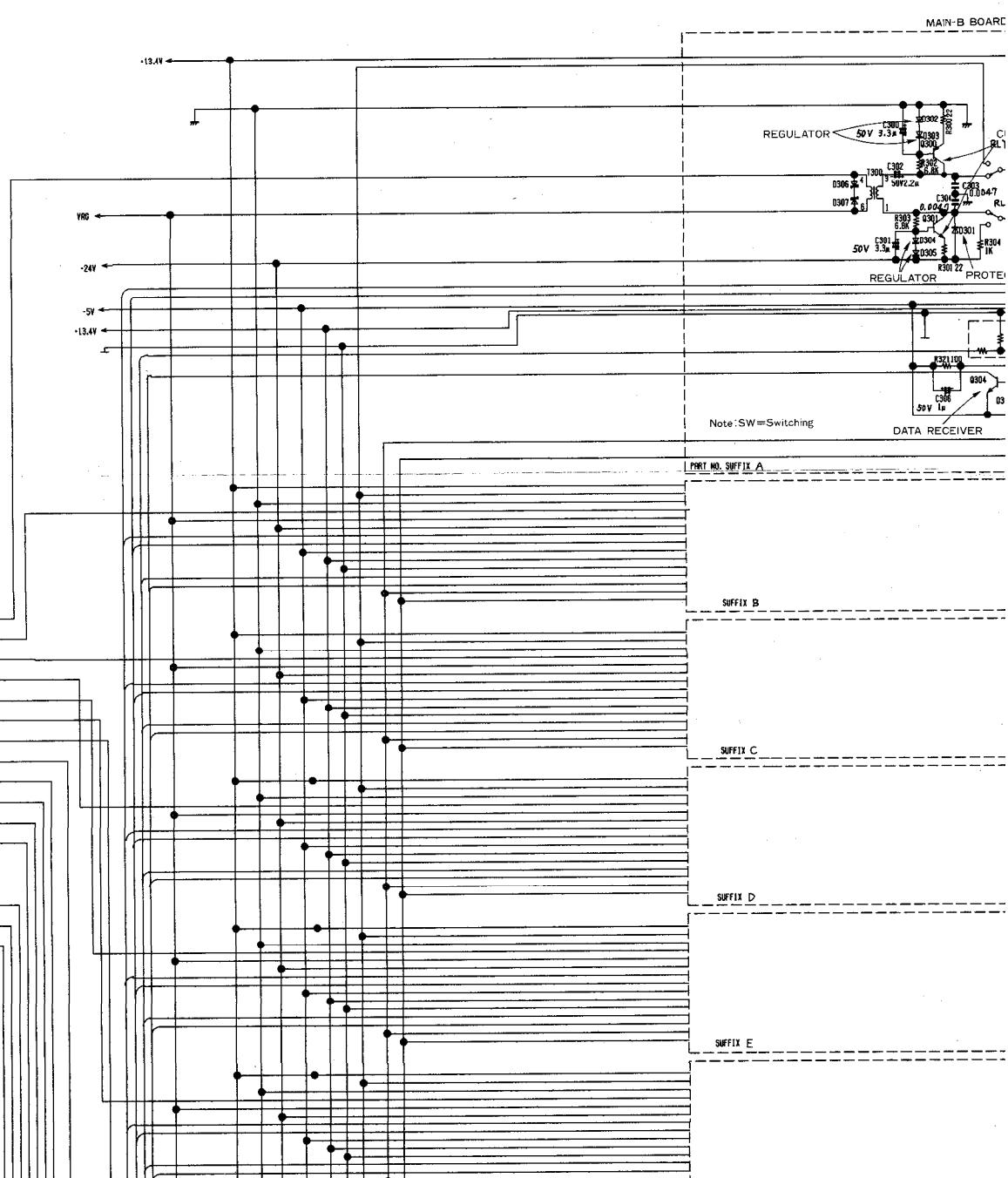
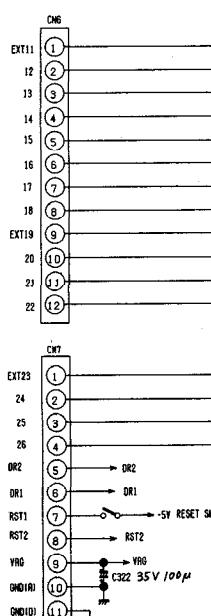
D

E

F

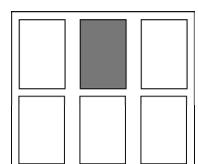
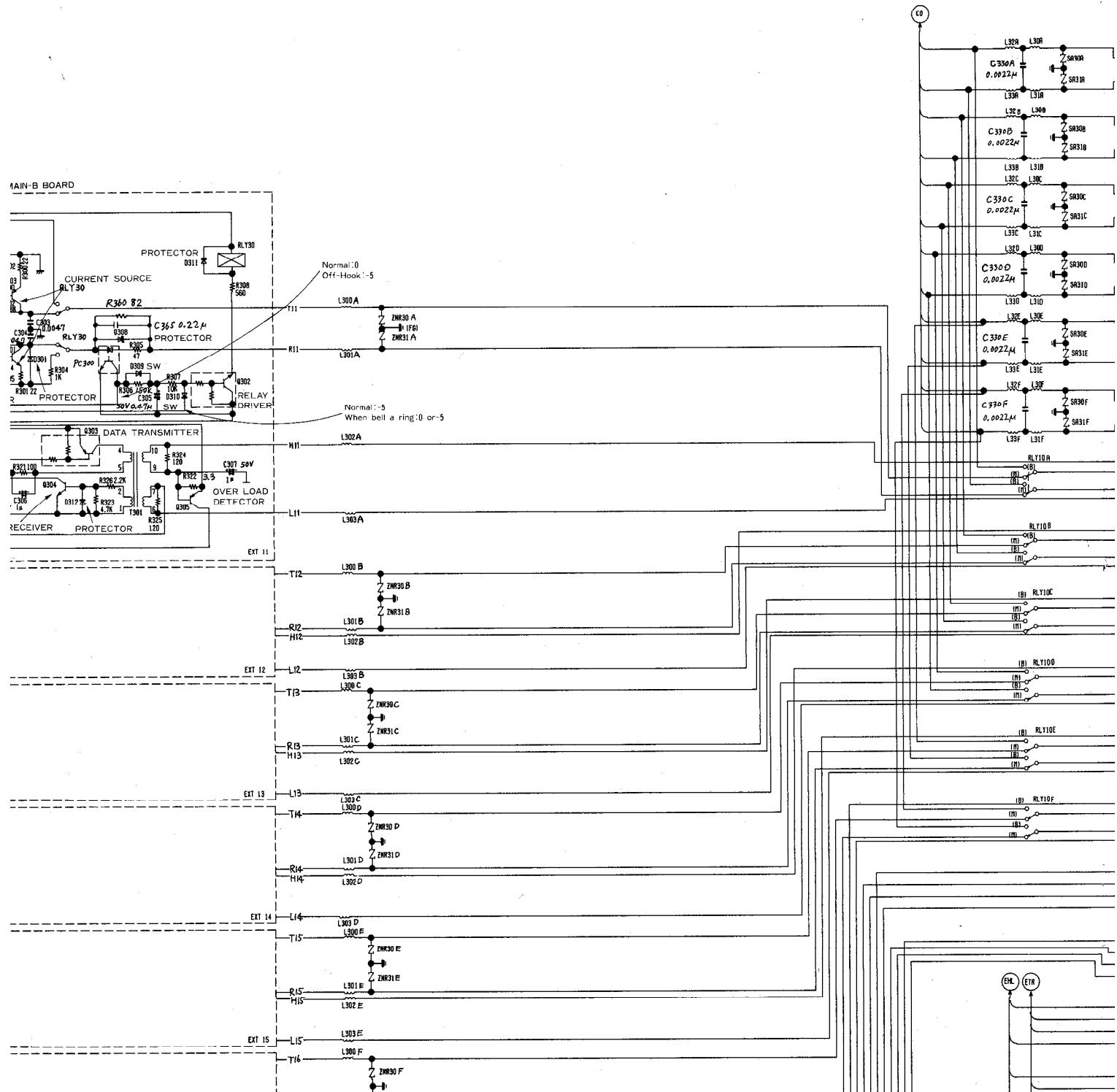
G

H

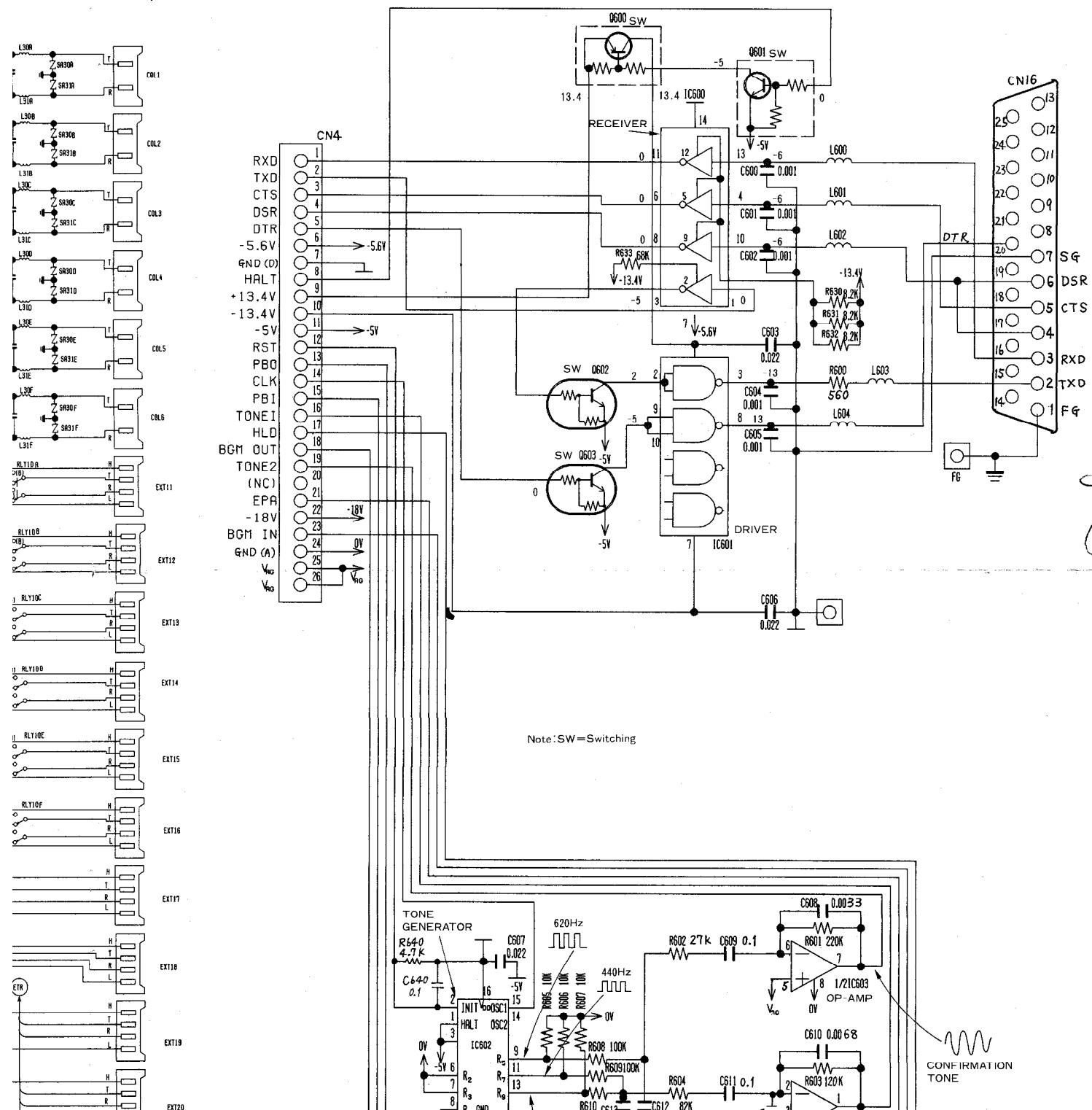


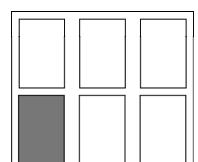
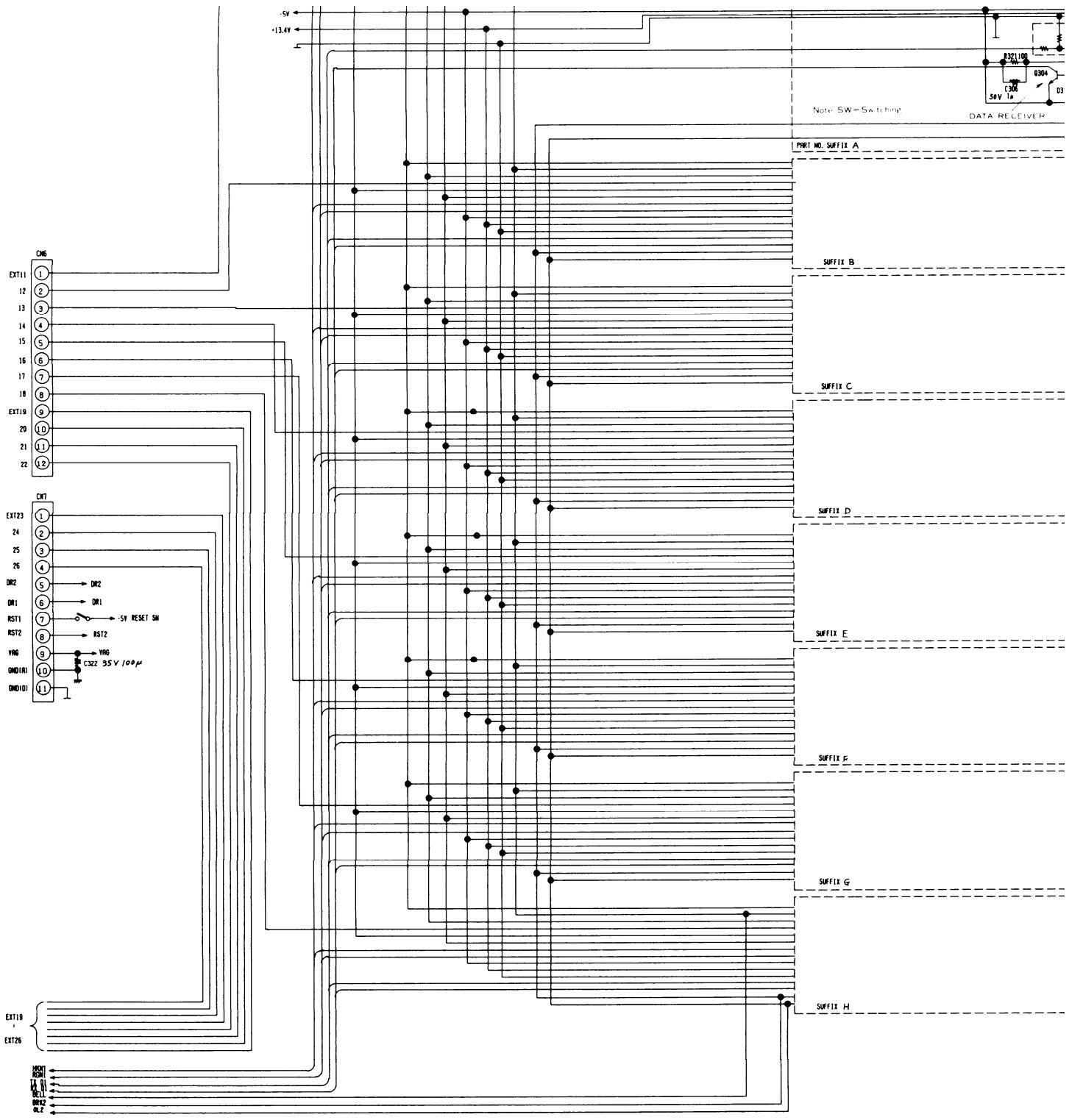
SCHEMATIC DIAGRAM

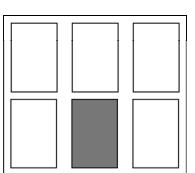
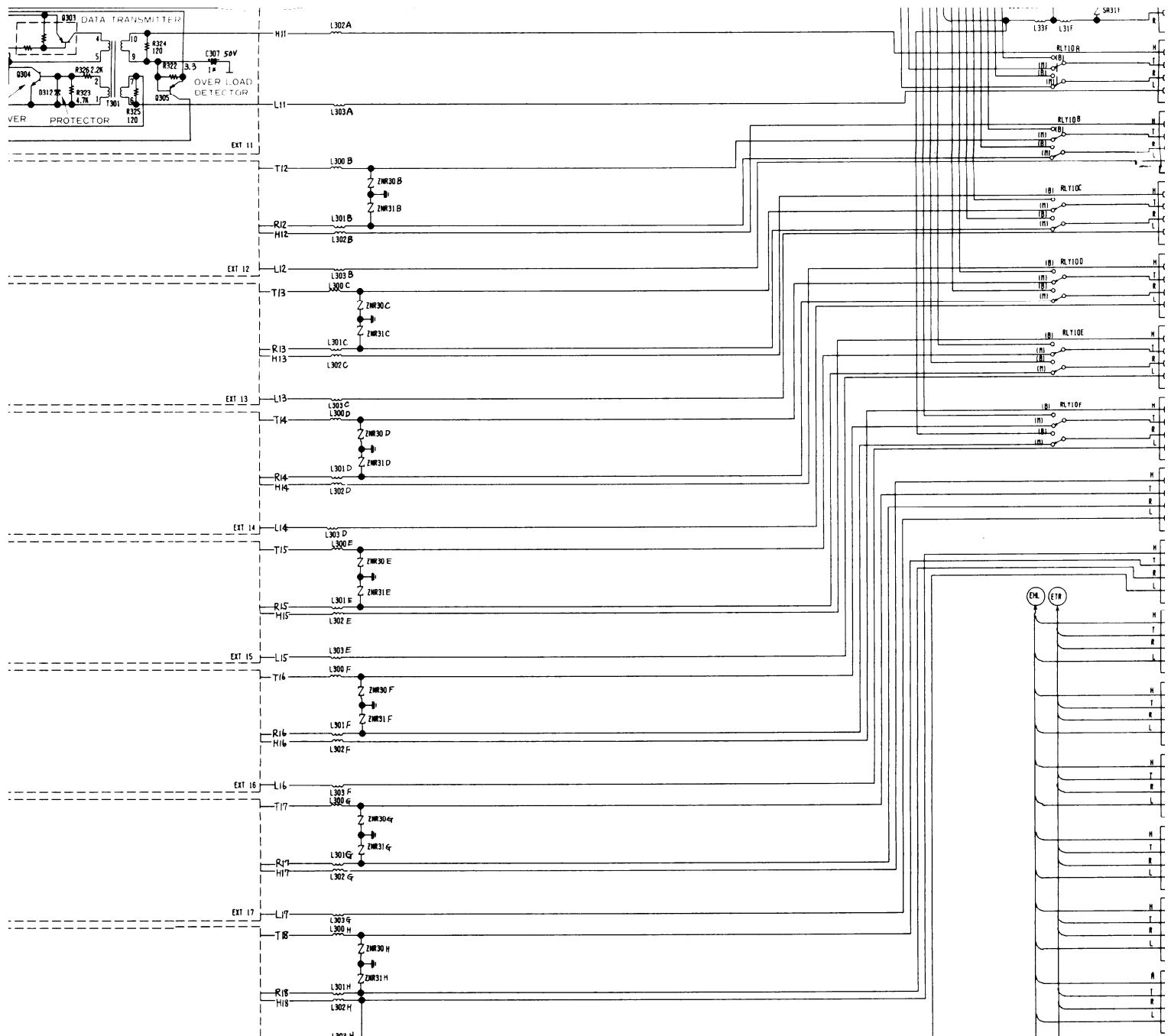
7 | 8 | 9 | 10 | 11 | 12 | 13

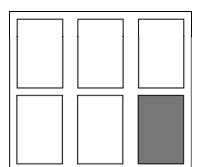
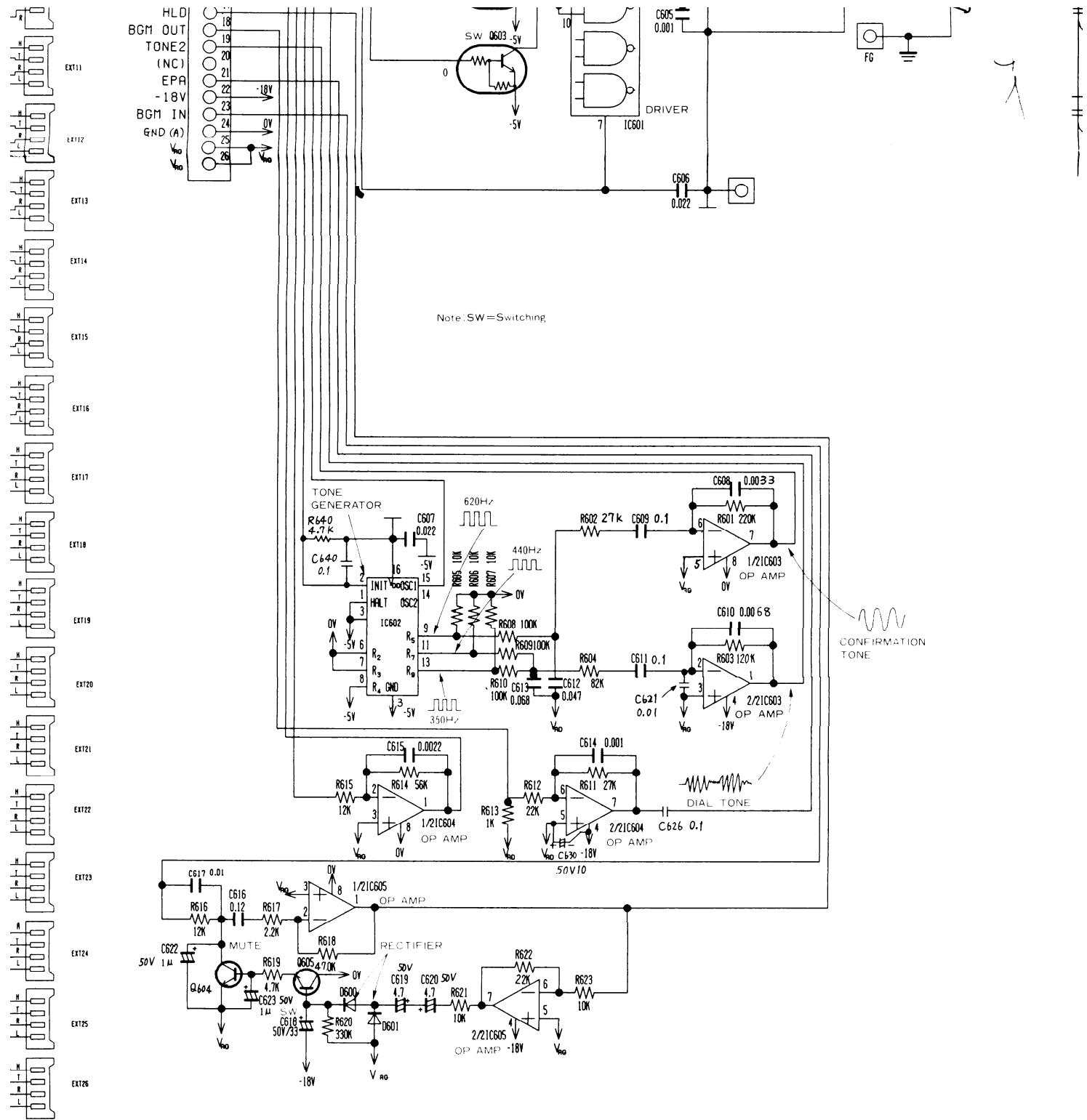


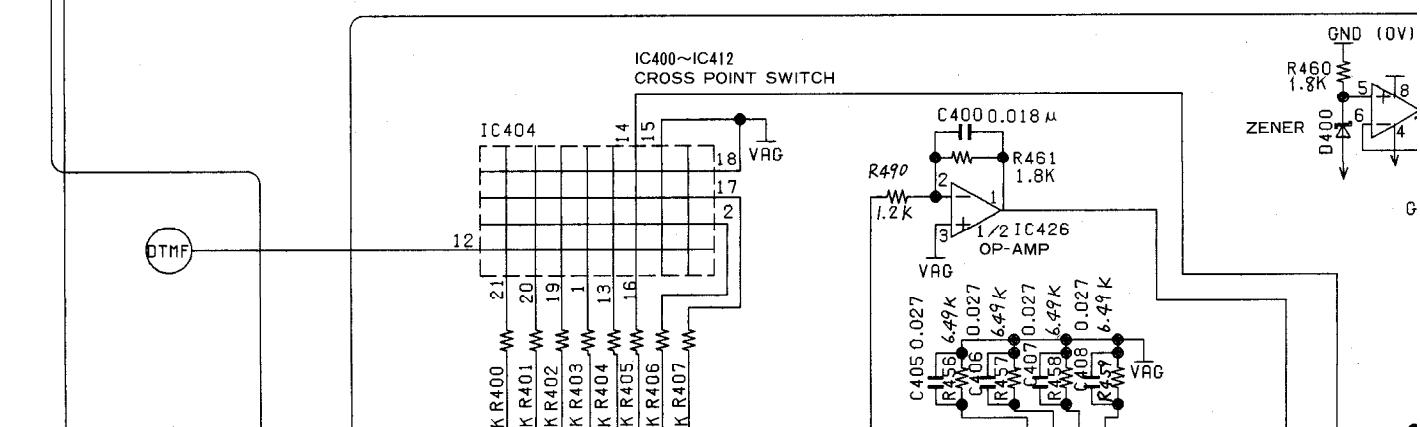
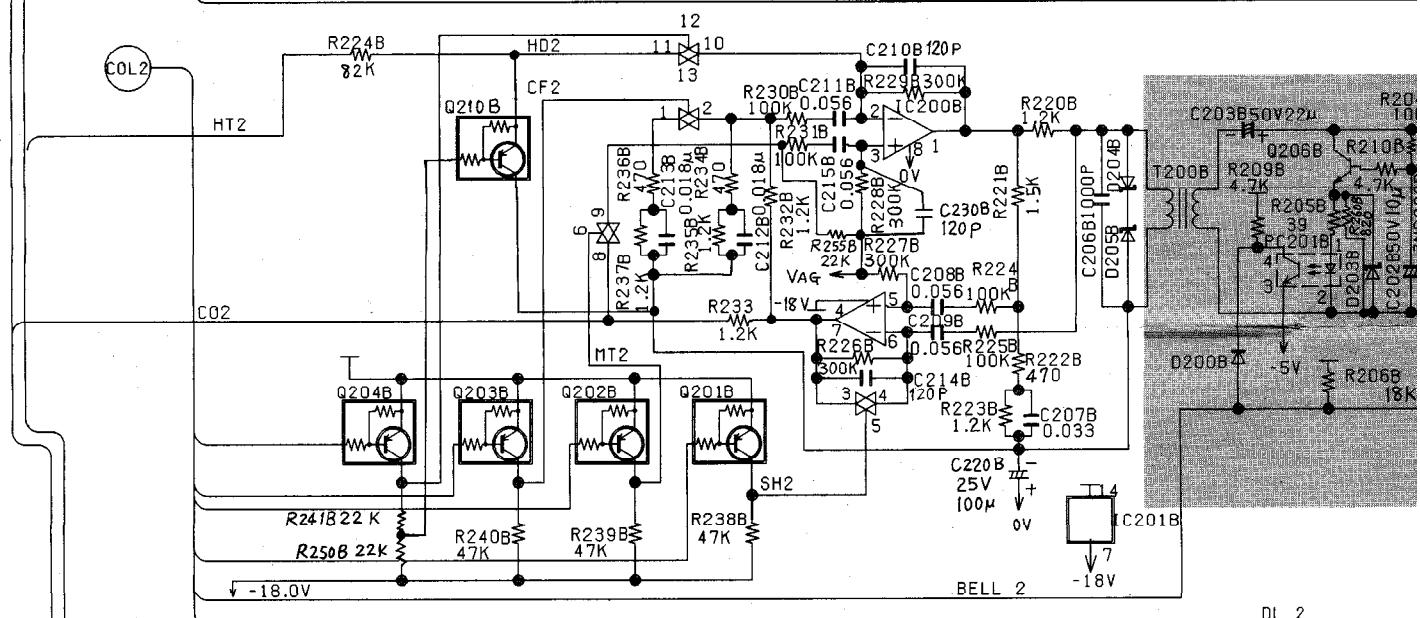
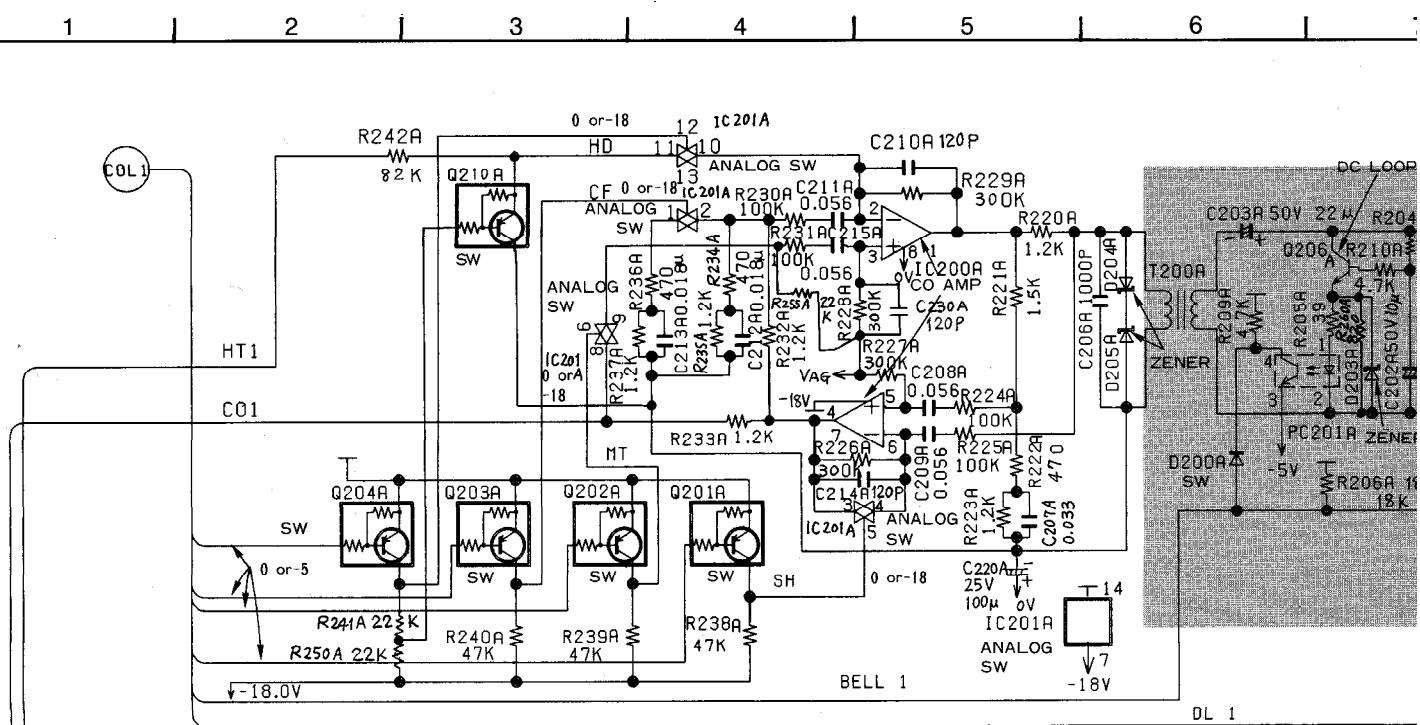
SMDR BOARD











SCHEMATIC DIAGRAM

7

8

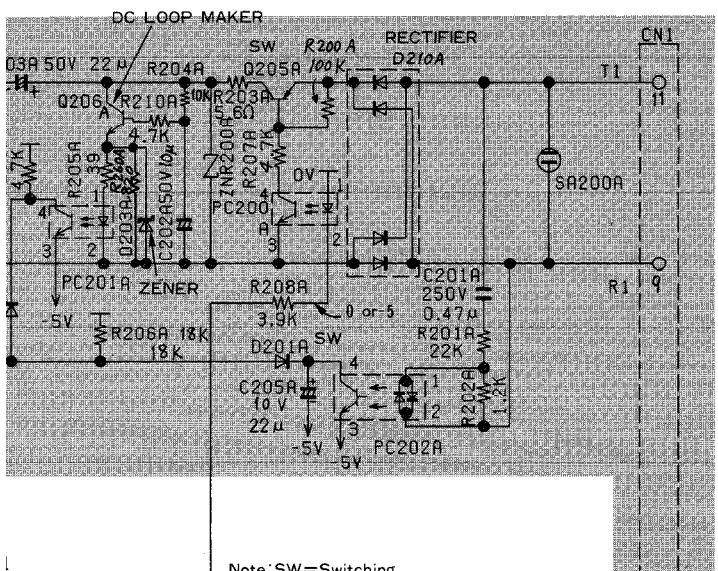
9

10

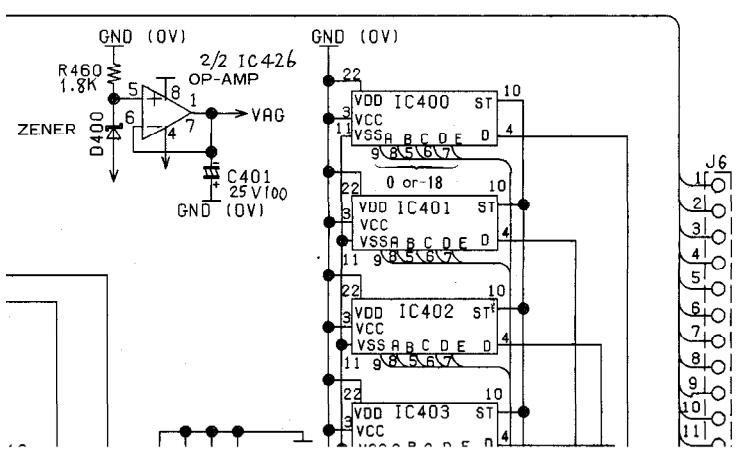
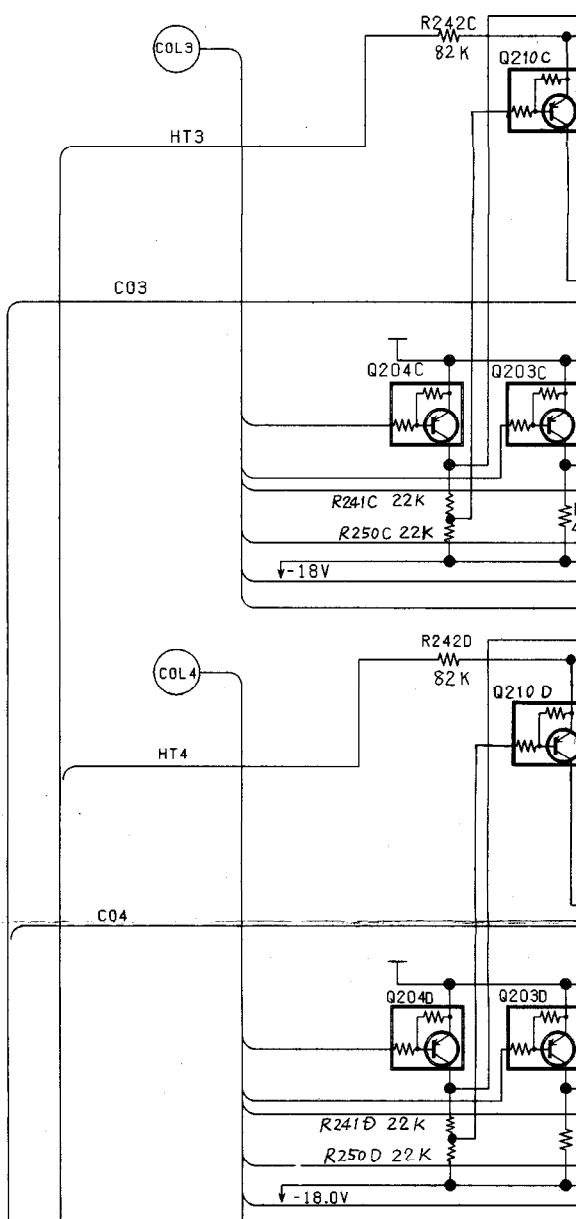
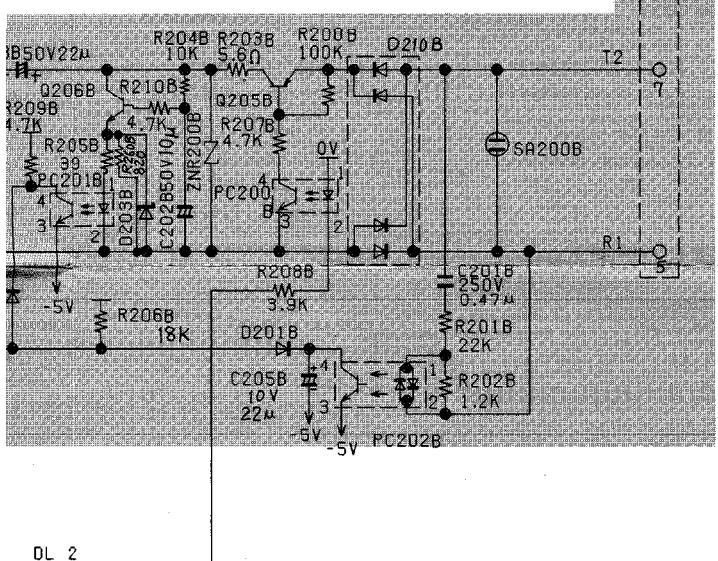
11

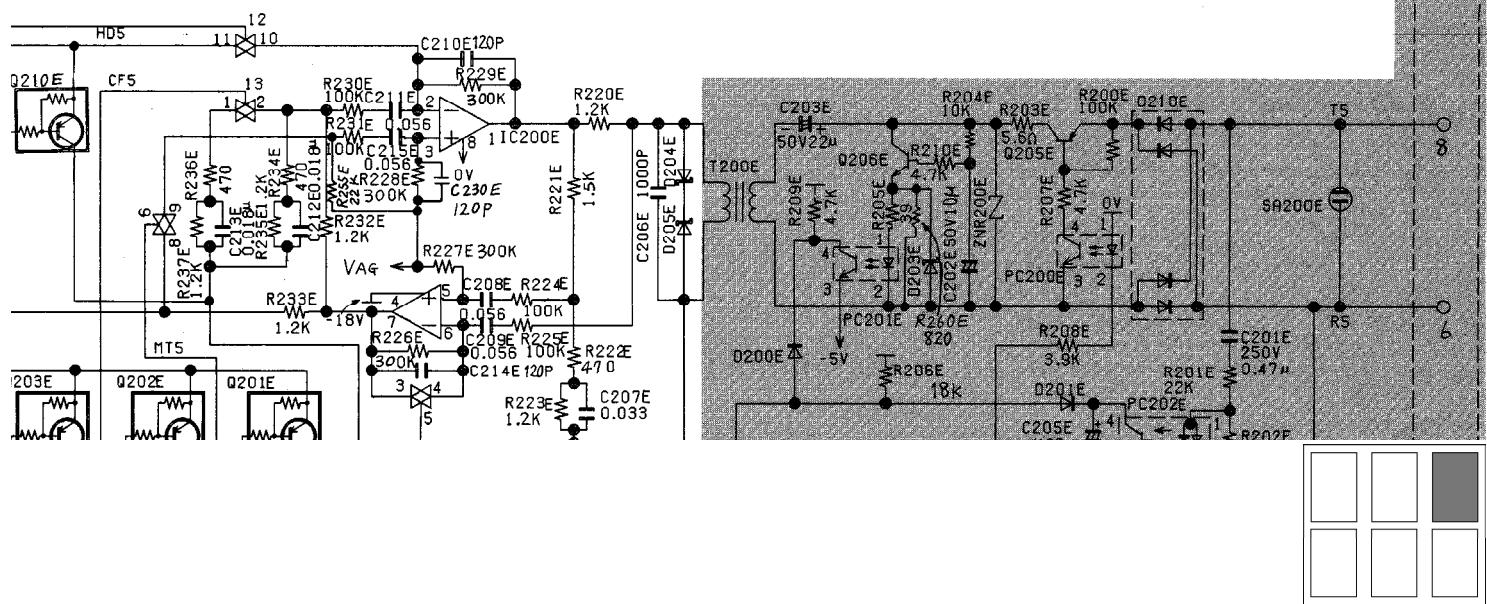
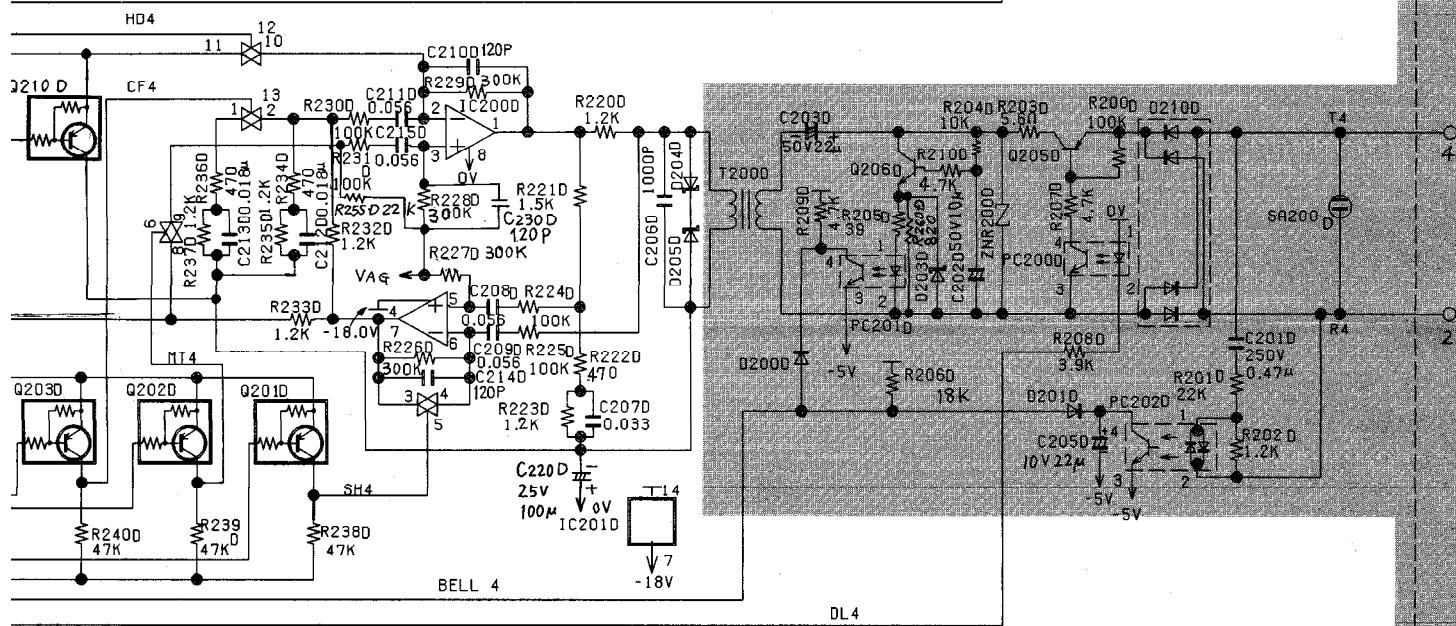
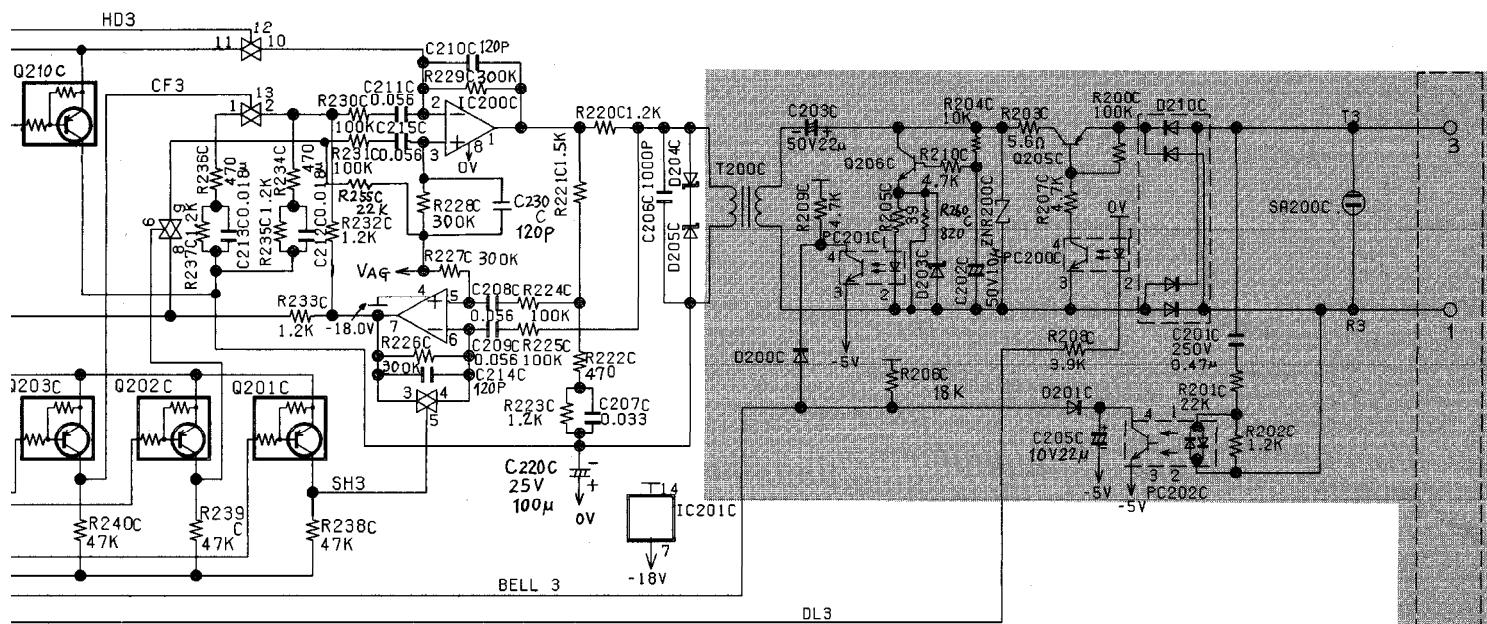
12

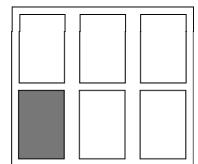
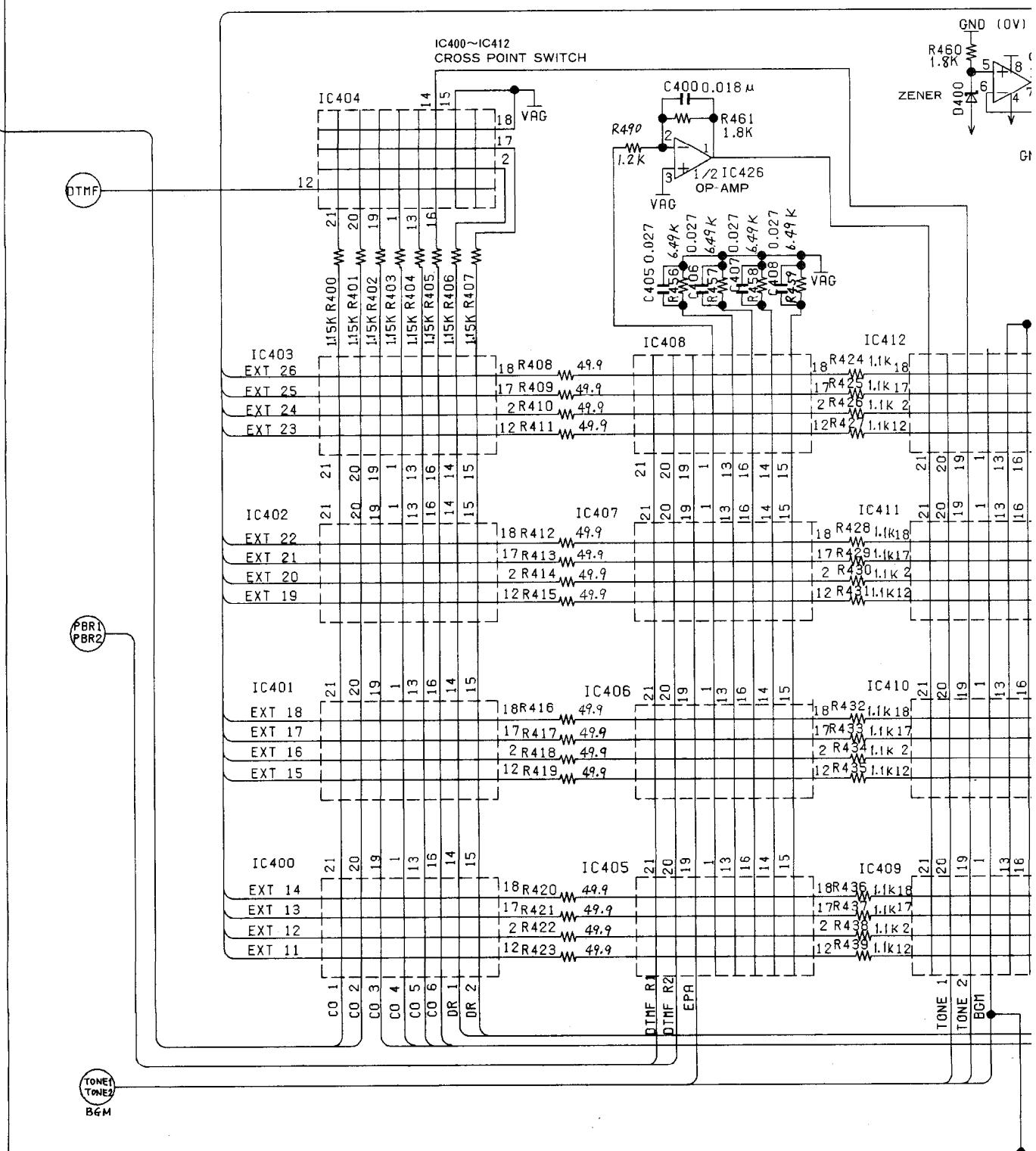
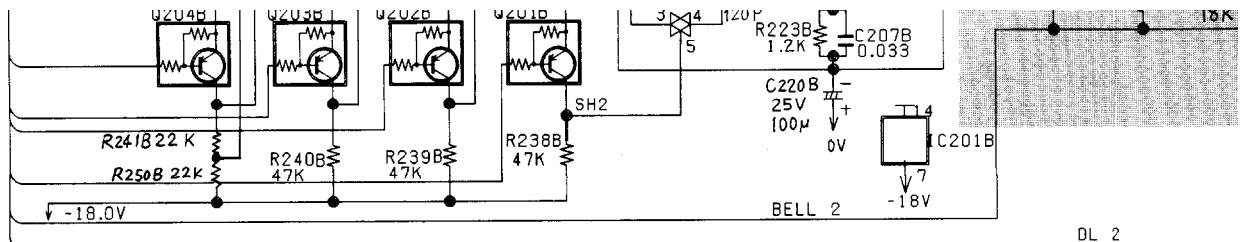
MAIN-B BOAD

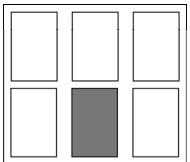
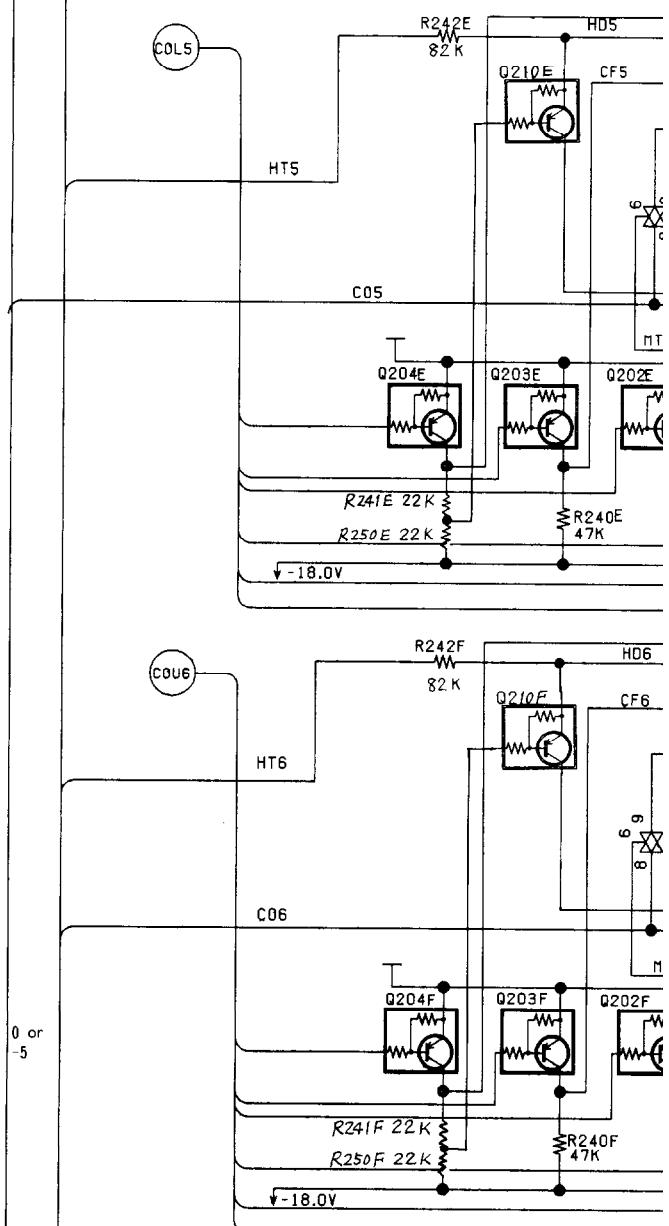
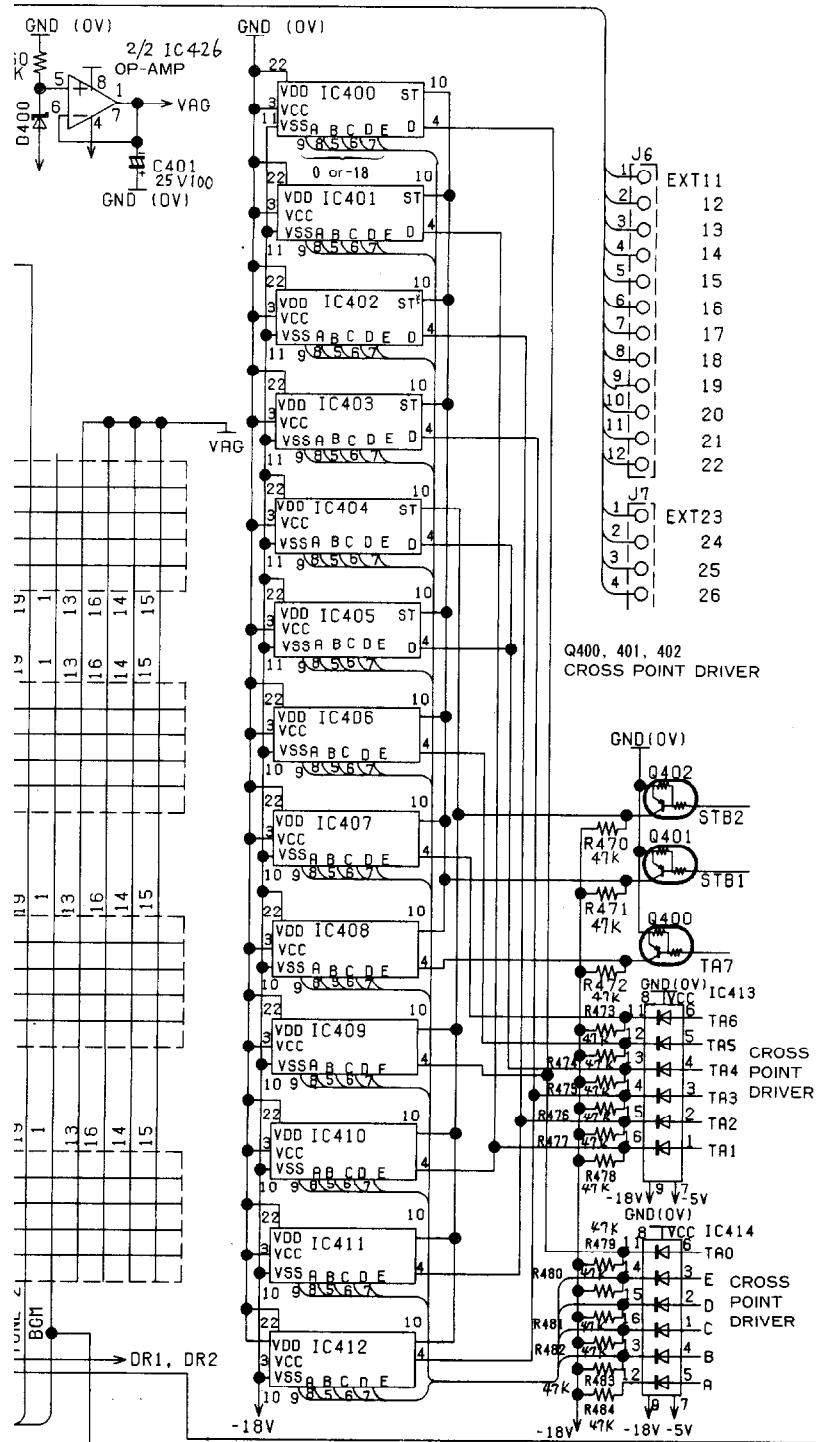
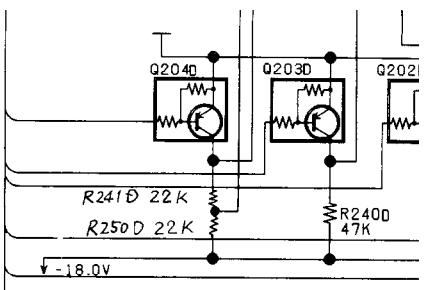
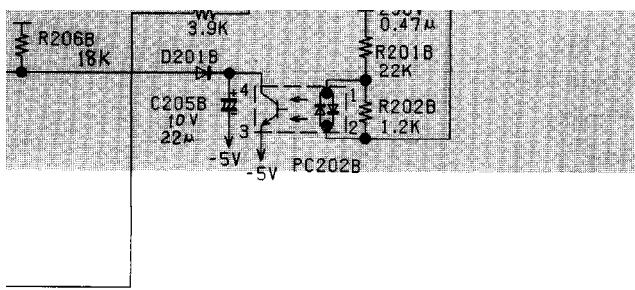


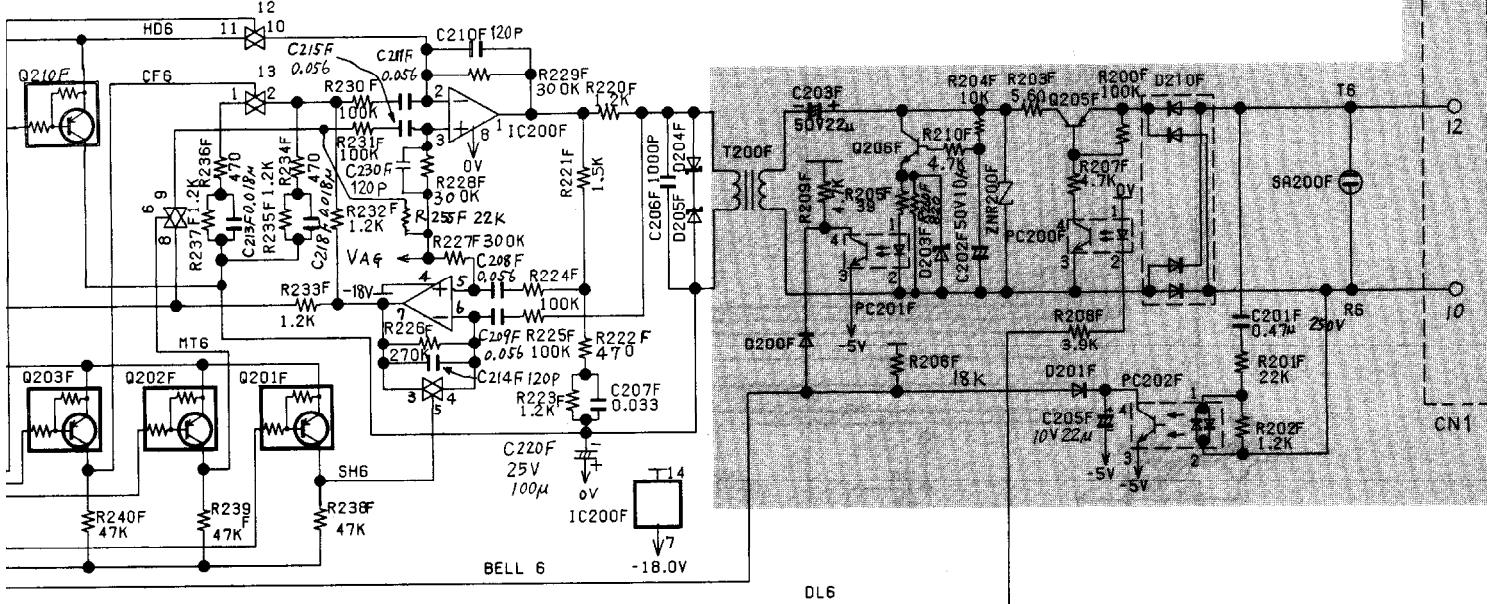
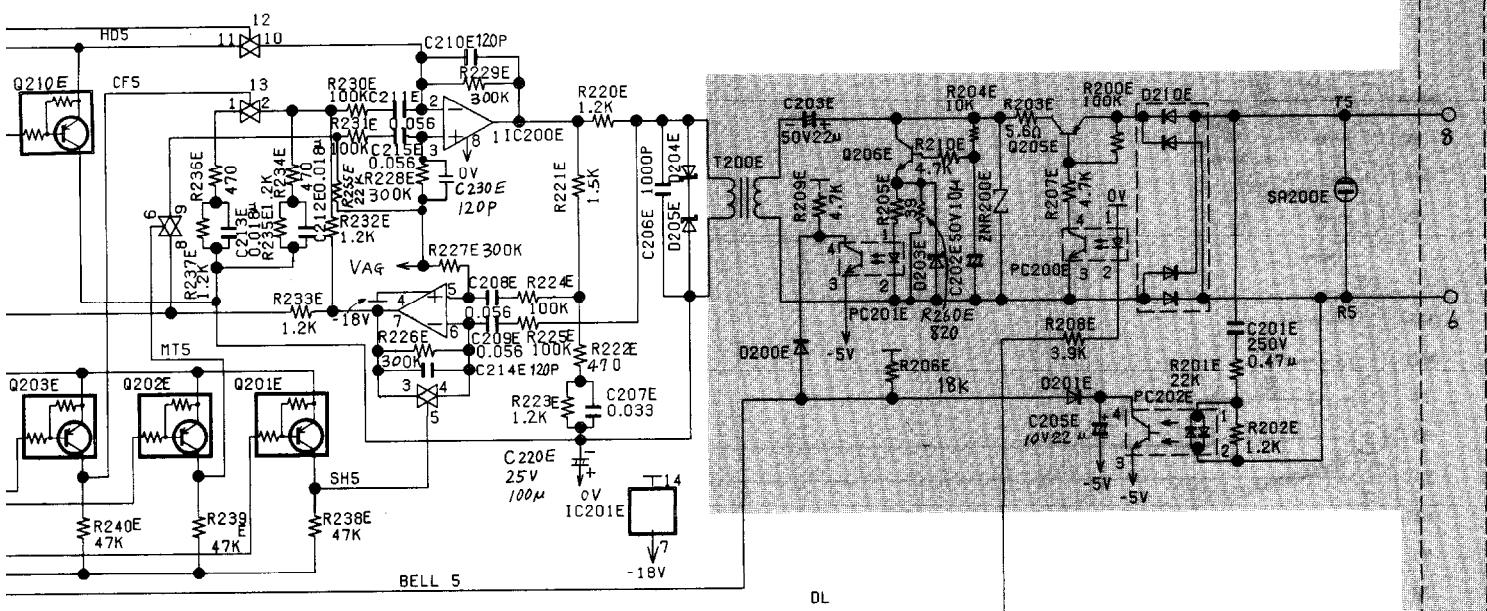
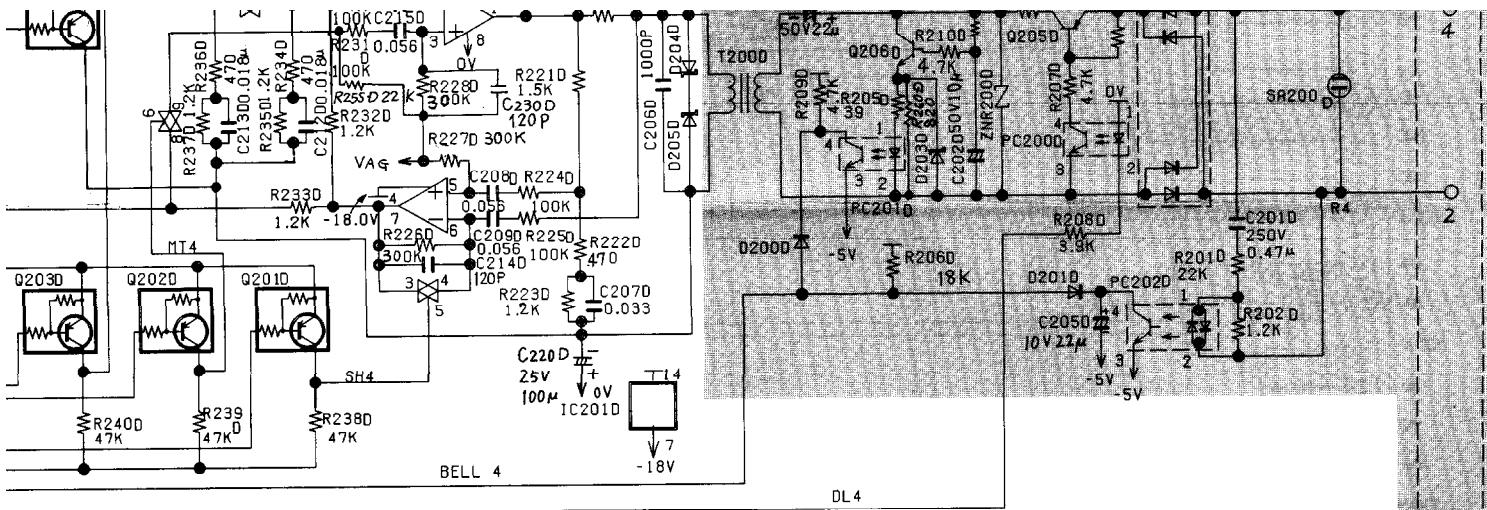
Note: SW=Switching

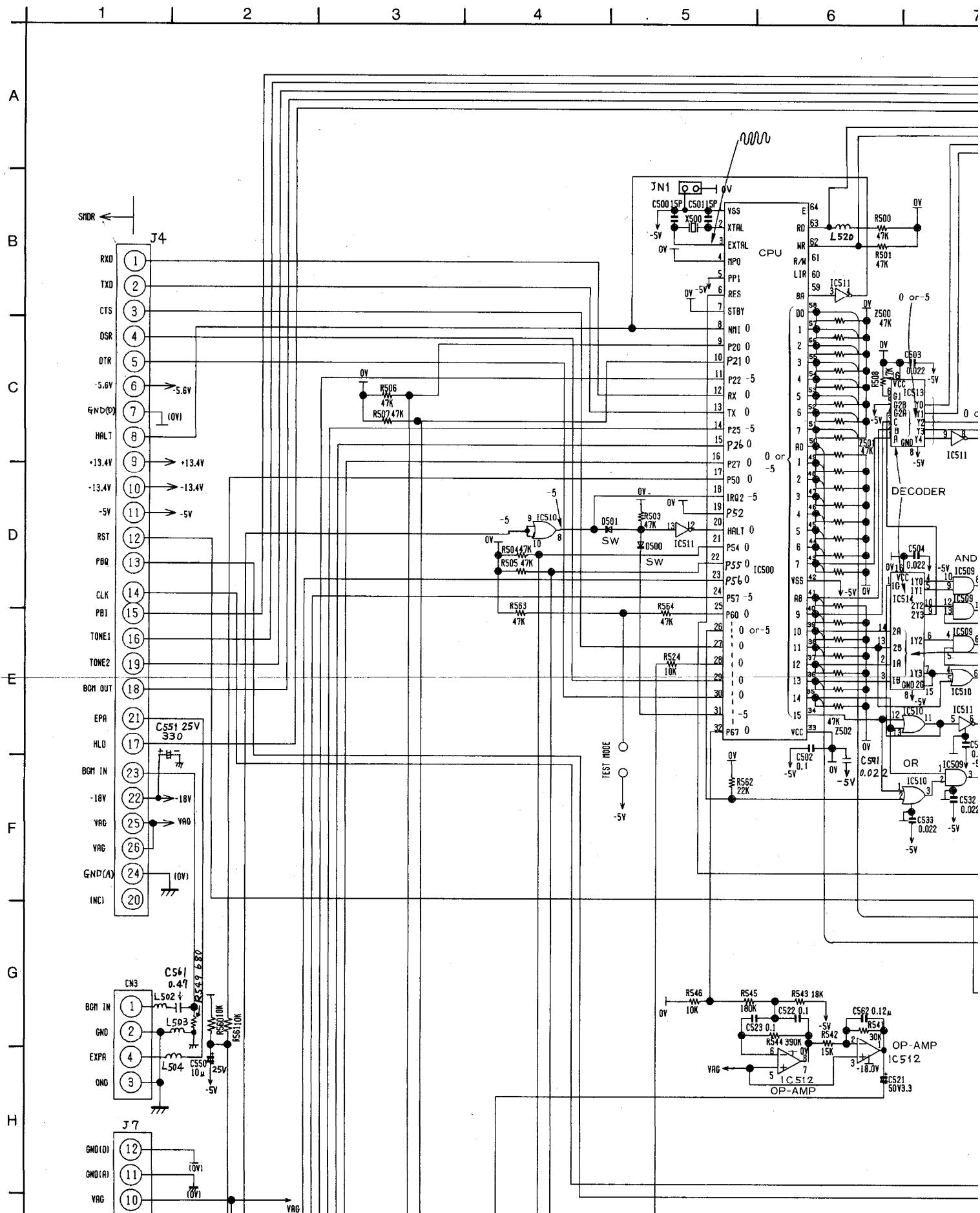












SCHEMATIC DIAGRAM

7

8

9

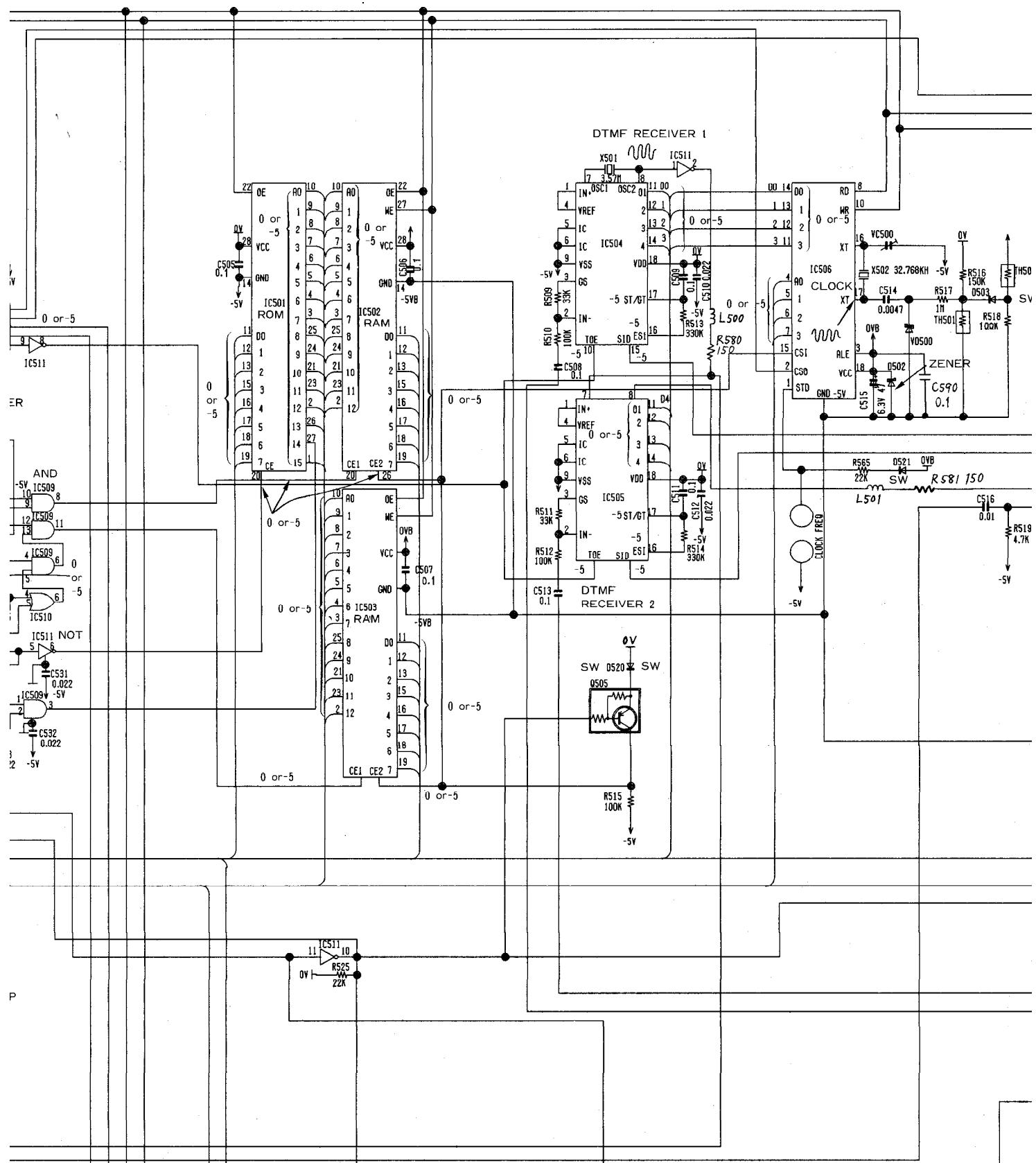
10

11

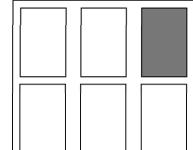
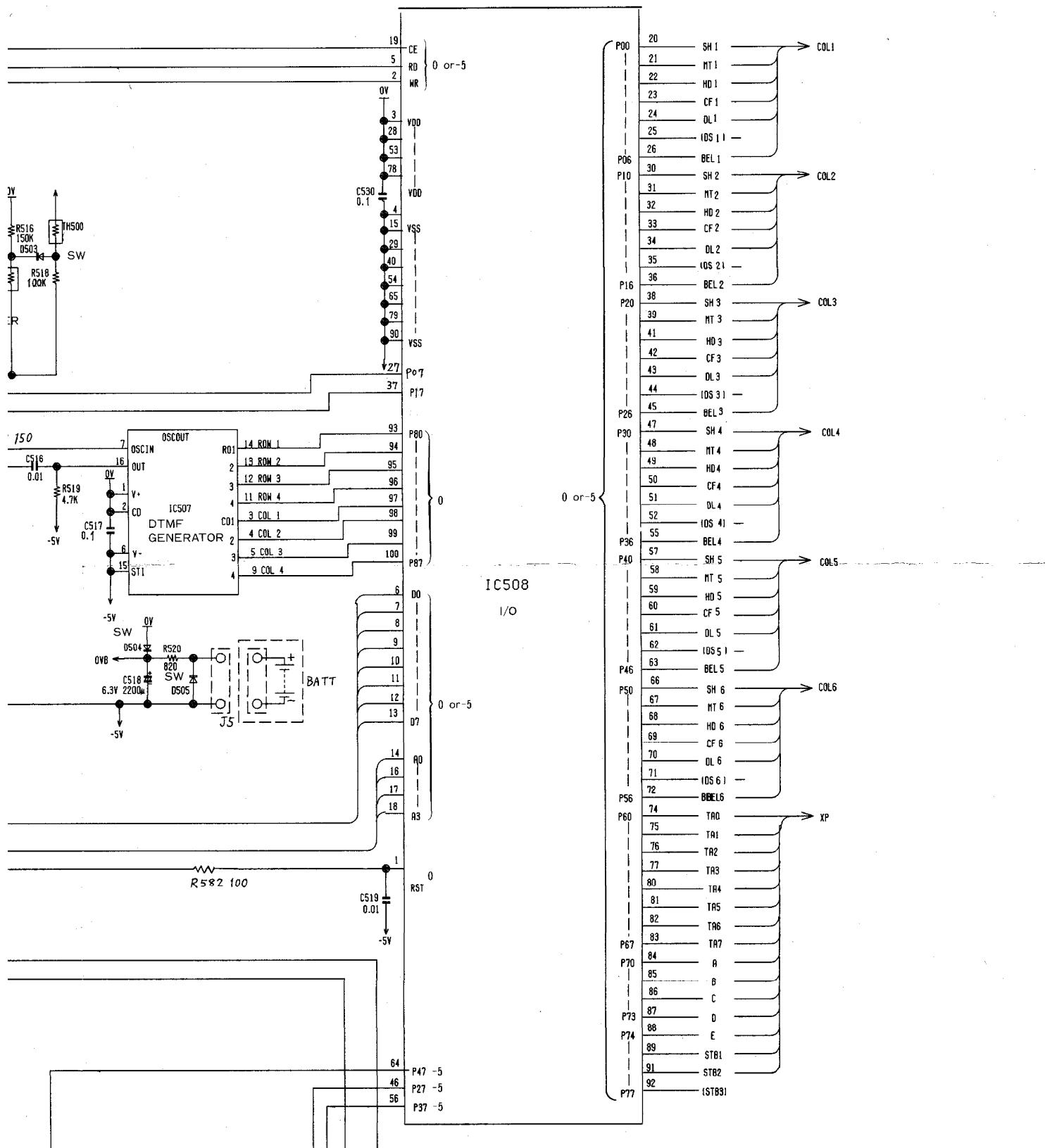
12

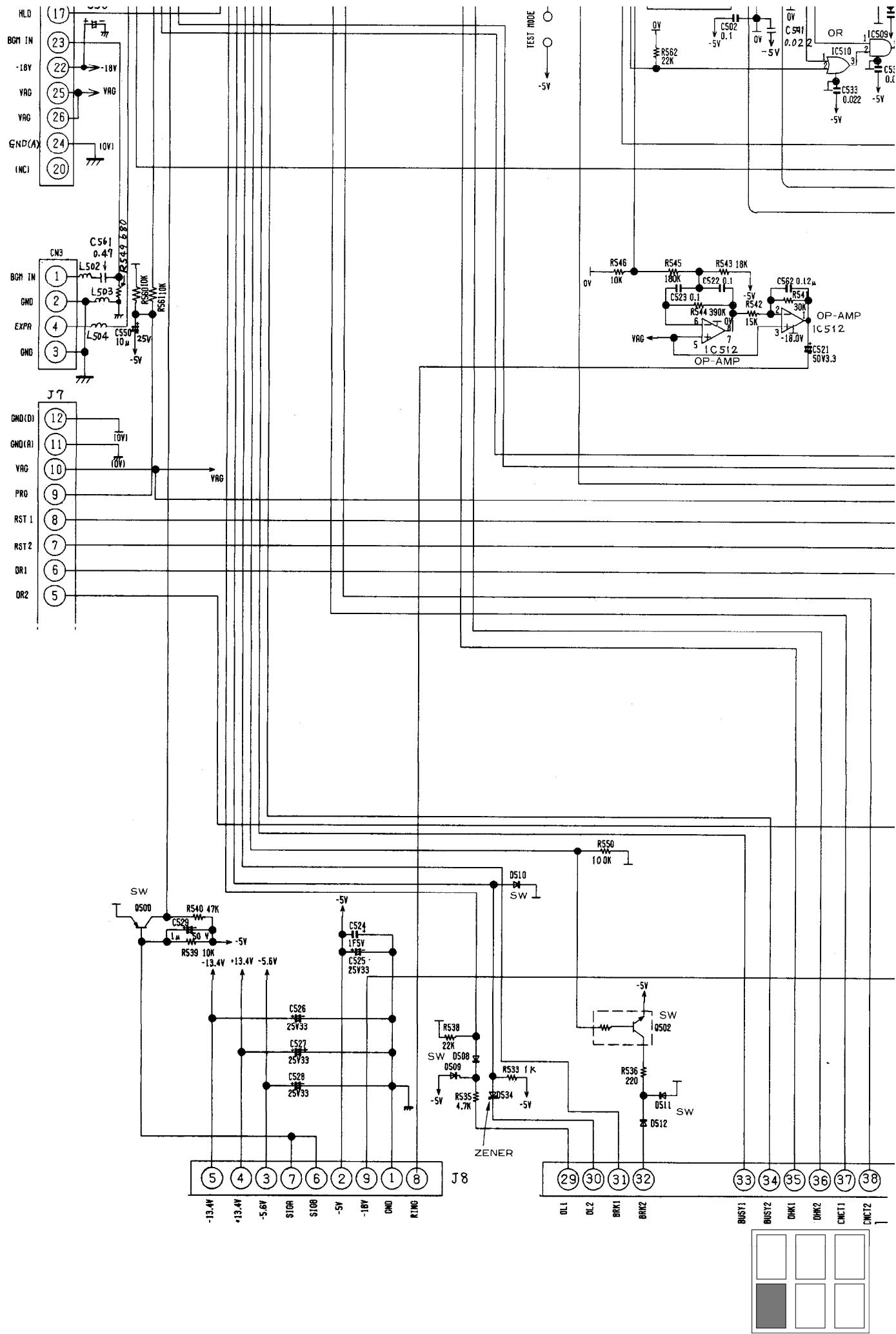
13

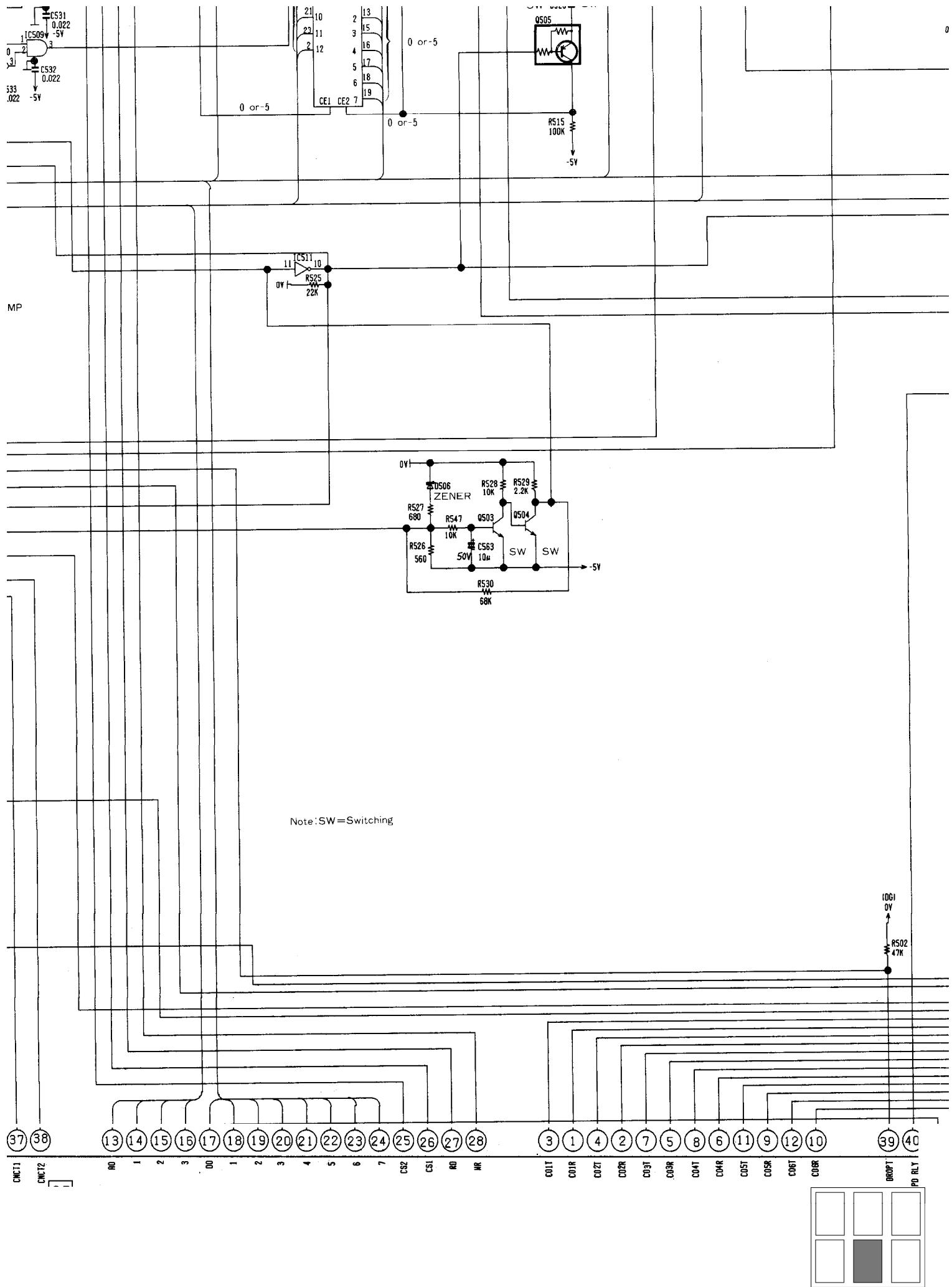
MAIN-B BOARD

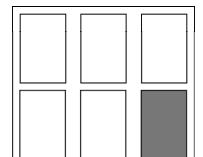
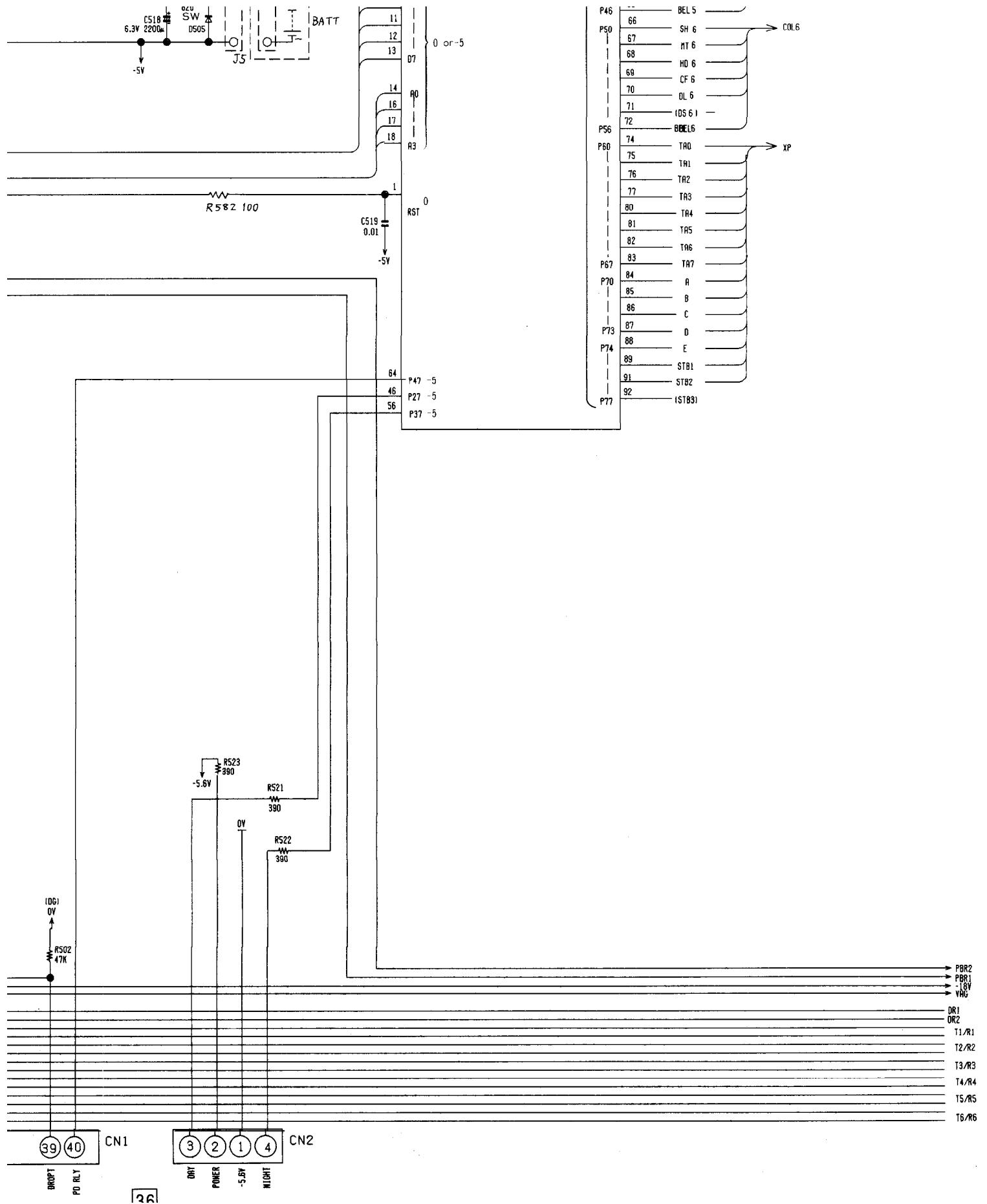


DTMF
TONE1(350/440HZ)
TONE2(620HZ)
EPR
HLD

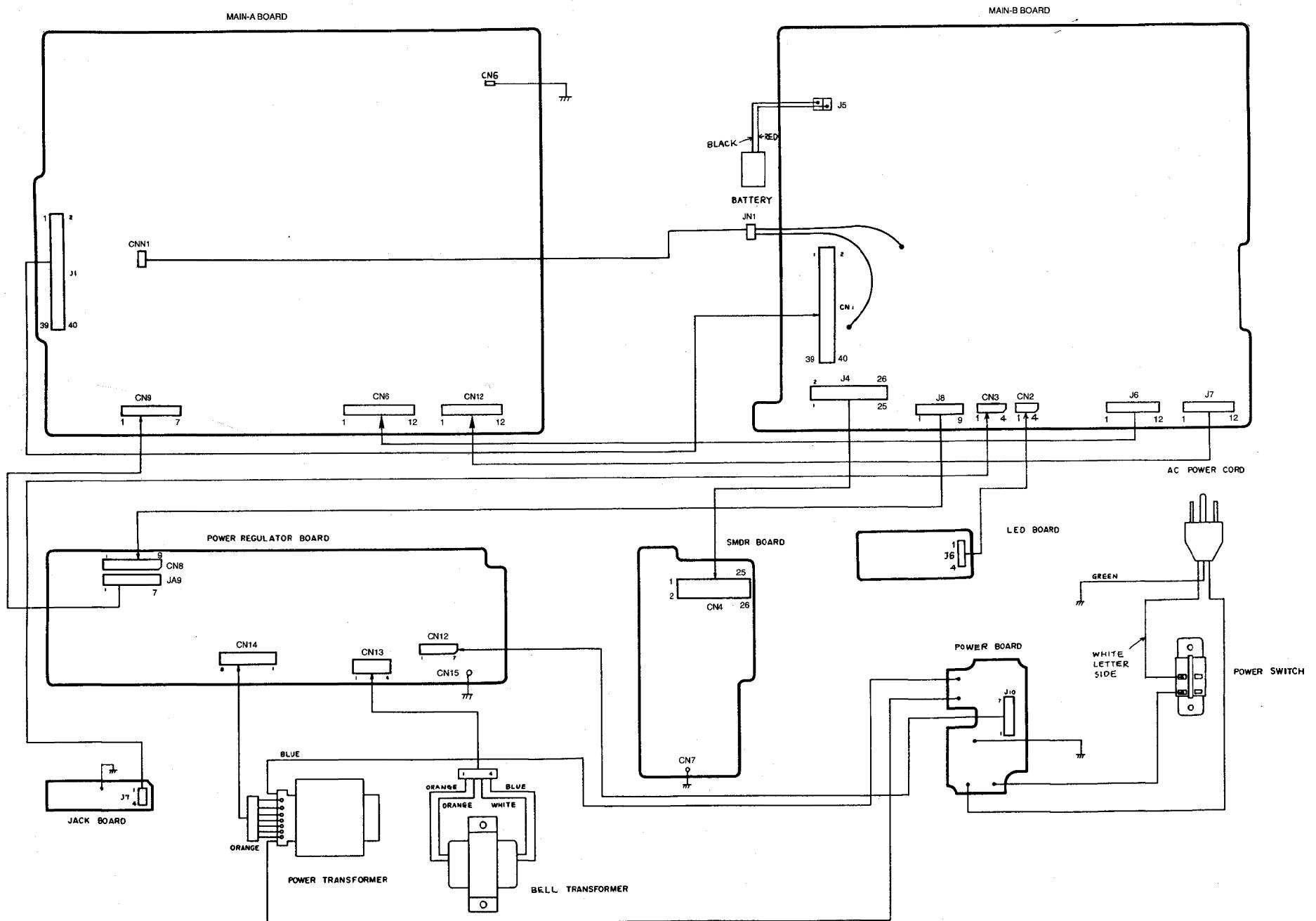






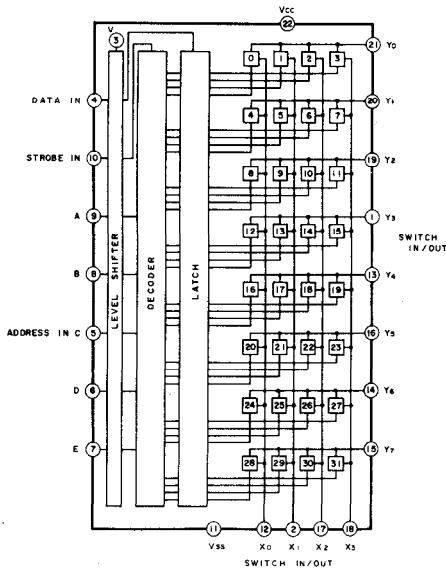


WIRING CONNECTION DIAGRAM

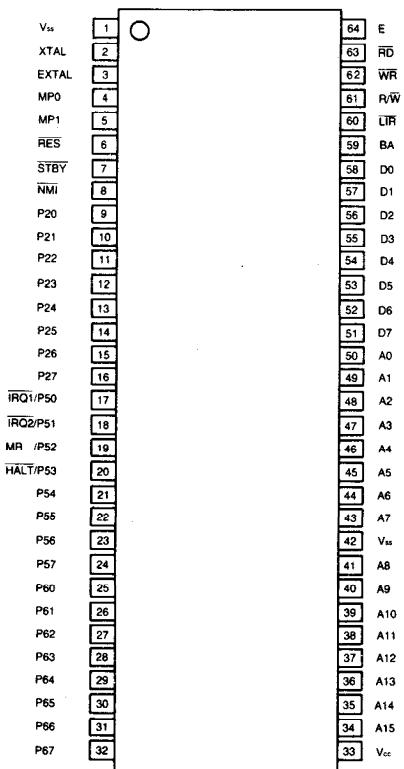


IC BLOCK DIAGRAM

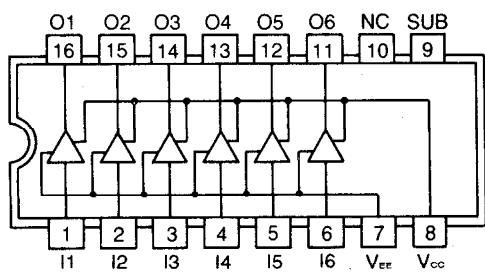
IC400~412 PQVIM402101P



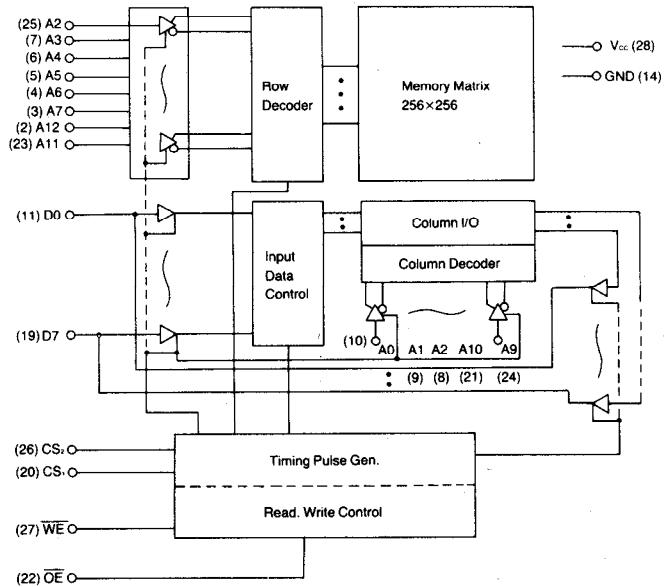
IC500 PQVIH63B03XP



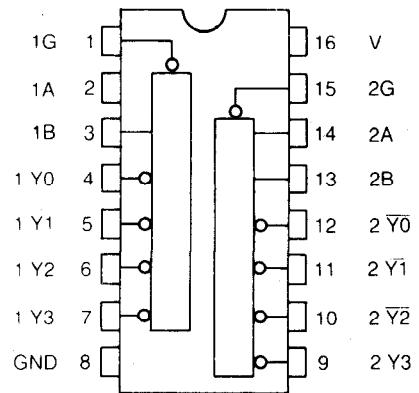
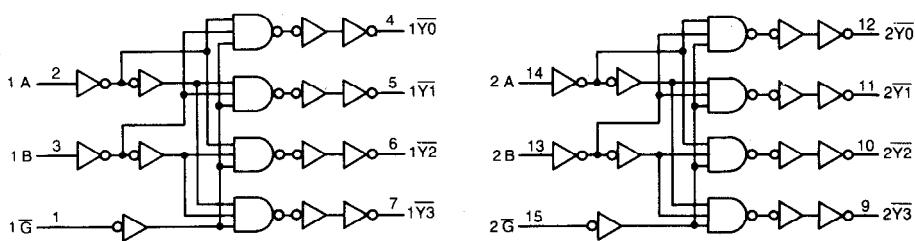
IC413, 414 PQVITD62706P



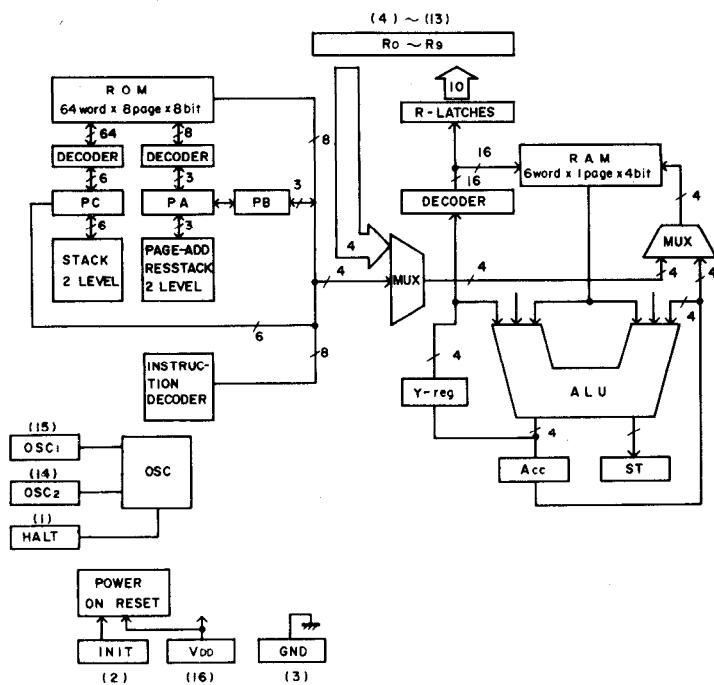
IC502, 503 PQVIHM6264LA

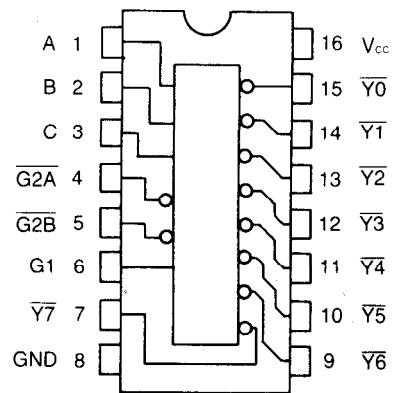
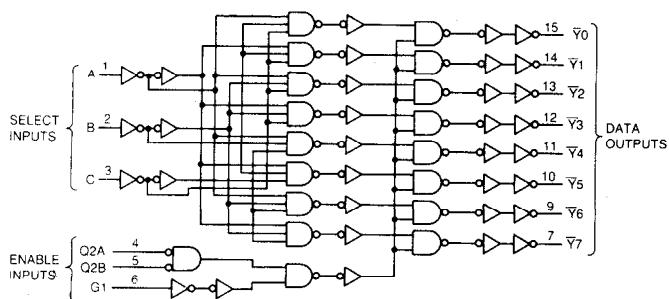
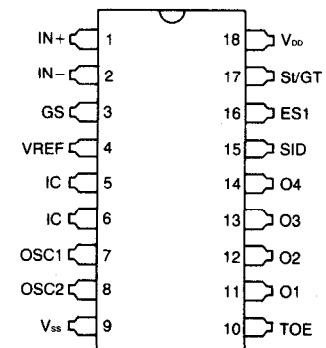
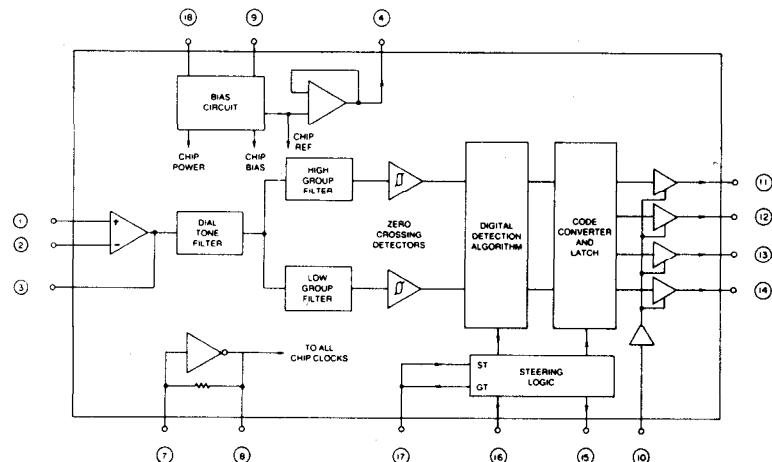
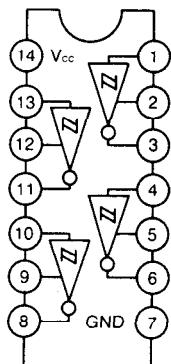
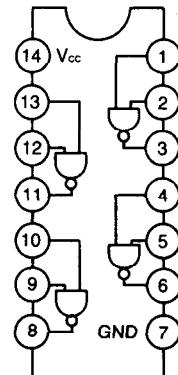


IC514 PQVITC7H139P

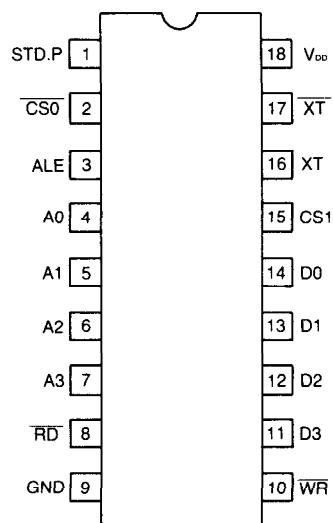


IC602 PQVIBU3140



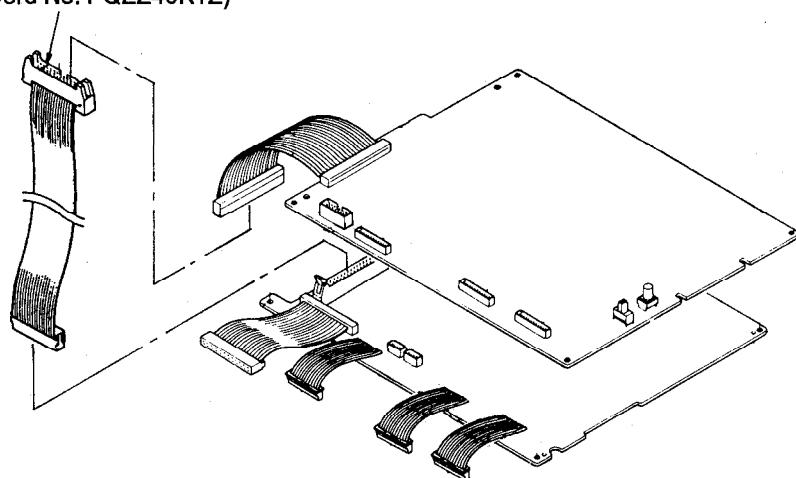
IC513 PQVITC7H138P**IC504, 505 PQVIMT8870BC****IC600 PQVIHD75189P****IC601 PQVIHD75188P**

IC506 PQVIMS6242BS



EXTENSION CORD CONNECTING METHOD

Extension Cord
(Cord No. PQZZ40K1Z)



ADJUSTMENTS

■ OSCILLATION PERIOD ADJUSTMENT

Perform the following adjustment after replacing IC506 and VC500.

1. Connect the AC cord to the AC power source.
2. Set the power switch to ON.
3. Connect the lead wire. (See Fig. 16)
(After adjustment, remove the lead wire.)
4. Push the reset switch.
5. Connect the frequency counter. (See Fig. 15)
6. Set the frequency counter to PERIOD.
7. Adjust VC500 for a reading of () msec on the frequency counter.

Room temperature for adjusting (°C)	Period value (msec)	Room temperature for adjusting (°C)	Period value (msec)
14~14.9	15.624943 (± 0.00001)	20~20.9	15.624880 (± 0.00001)
15~15.9	15.624933 (± 0.00001)	21~21.9	15.624876 (± 0.00001)
16~16.9	15.624922 (± 0.00001)	22~27.9	15.624870 (± 0.00001)
17~17.9	15.624910 (± 0.00001)	28~28.9	15.624876 (± 0.00001)
18~18.9	15.624899 (± 0.00001)	29~29.9	15.624880 (± 0.00001)
19~19.9	15.624888 (± 0.00001)		

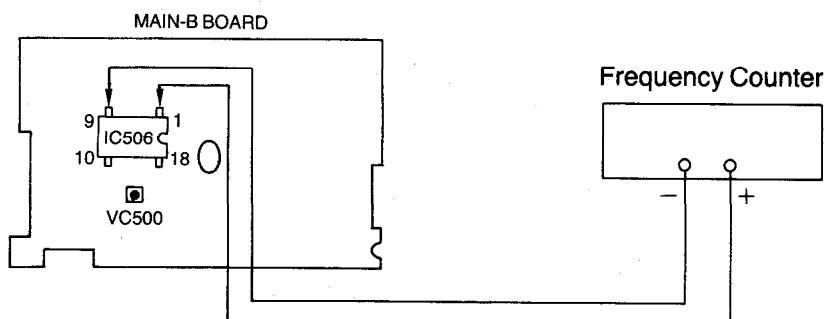


Fig. 15

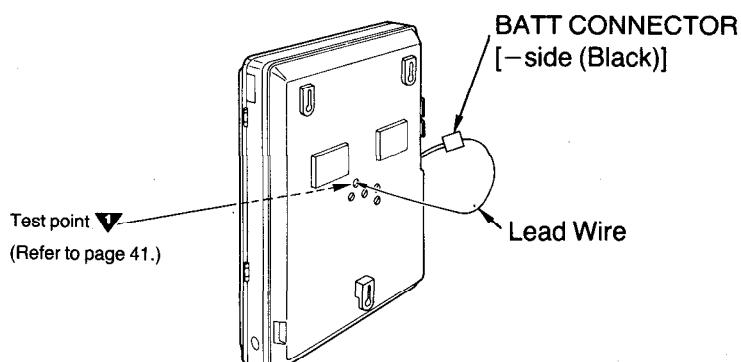


Fig. 16

EXPLODED VIEW

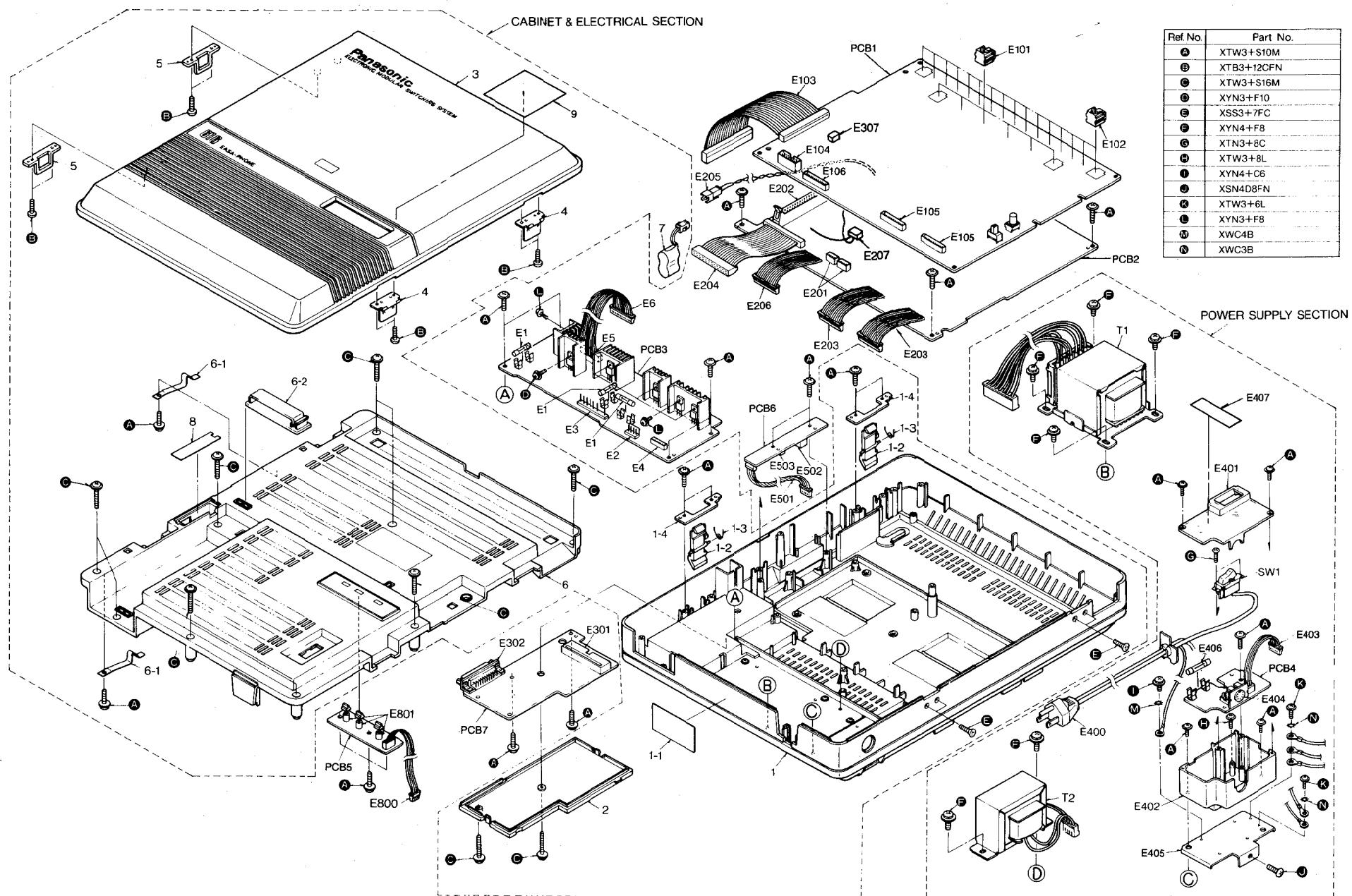


Fig. 17

ACCESSORIES & PACKING MATERIALS

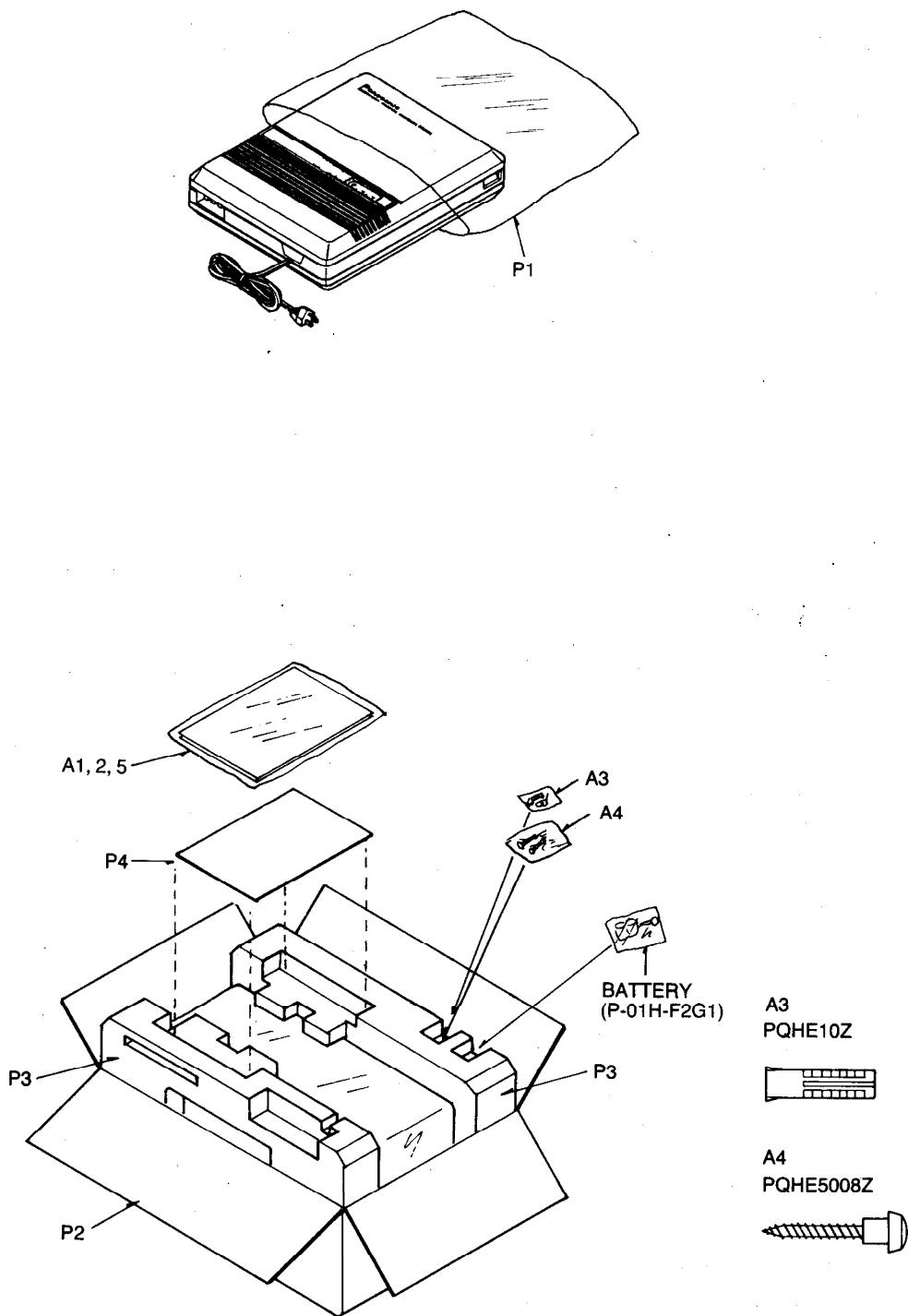


Fig. 18

REPLACEMENT PARTS LIST			
Notes:			Model KX-T61610-1
1. Printed circuit board assembly with mark (NLA) is no longer available after production discontinuation of the complete set.			
2. Important safety notice.			
Components identified by the  mark special characteristics important for safety.			
When replacing any of these components, use only manufacturer's specified parts.			
3. The S mark indicates service standard parts and may differ from production parts.			
4. RESISTORS & CAPACITORS			
Unless otherwise specified.			
All resistors are in ohms(Ω) k=1000 Ω , M=1000k Ω			
All capacitors are in MICRO FARADS(μF) P= 0.001 μF			
*Type & Wattage of Resistor			
Type			
ERC:Solid	ERX:Metal Film	PQRD:Carbon	
ERD:Carbon	ERG:Metal Oxide	PQRQ:Fuse	
PQ4R:Chip	ERO:Metal Film	ERF:Wire Wound	
Wattage			
10,16,18:1/8W	14,25,S2:1/4W	12,50,S1:1/2W	1:1W 2:2W 5:5W
*Type & Voltage of Capacitor			
Type			
ECFD:Semi-Conductor	ECCD,ECKD,PQCB : Ceramic		
ECQS:Styrol	ECQM,ECQV,ECQE,ECQU,ECQB : Polyester		
PQCBX,ECUV:Chip	ECEA,ECSZ,ECOS : Electrolytic		
ECMS:Mica	ECQP : Polypropylene		
Voltage			
ECQ Type	ECQG ECQV Type	ECSZ Type	Others
1H: 50V	05: 50V	0F:3.15V	OJ :6.3V 1V :35V
2A:100V	1:100V	1A:10V	1A :10V 50,1H:50V
2E:250V	2:200V	1V:35V	1C :16V 1J :63V
2H:500V		OJ:6.3V	1E,25:25V 2A :100V
CABINET & ELECTRICAL PARTS			
1	PQYMT61610M1	Rear Cabinet Assembly	1
1-1	PQGT384Z	Name Plate	1
1-2	PQHR9120Z8	Hook	2
1-3	PQUS91Z	Spring, Hook	2
1-4	PQUL51Z	Bracket, Hook	2
2	PQKE31Z8	Cabinet Door	1
3	PQYF1T61610M	Front Cabinet Assembly	1
4	PQBH2Z	Hinge	2
5	PQHR9121Z8	Hinge	2
6	PQYF2T61610M	Inside Cover Assembly	1
6-1	PQUS102Z	Leaf Spring	2
6-2	PQHR5044Z	Cord Holder	1
7	P-01H-F2G1	Battery	1
8	PQUV50Z	Battery Cover	1
9	PQQT4134Z	Label, Front Cabinet	1
ACCESSORIES AND PACKING MATERIALS			
A1	PQQX5341Z	Installation Manual	1
A2	PQQX5367Z	User Guide	1
A3	PQHE10Z	Mounting Bracket (Curl Plug)	3
A4	PQHE5008Z	Mounting Bracket (Screw)	3
A5	PQQX5402Z	User Guide (for KX-T30830/30820)	1
P1	XZB45X06A05	Protection Cover	1
P2	PQPK431Y	Packing Case	1
P3	PQPN9036Z	Pad Complete (L,R Side)	1
P4	PQPN668Z	Pad	1
MAIN-A BOARD PARTS			
Ref. No.	Part No.	Part Name & Description	Pcs
PCB1	PQWP161610M1	Main-A P.C. Board Assy (NLA)	1
IC300,301	PQVI671152F	(ICs) IC	2
Q300A-300P	2SB644	(TRANSISTORS) Transistor (Si)	16
Q301A-301P	2SD639	Transistor (Si)	
Q302A-302P	PQVTDT114Y	Transistor (Si)	S 16
Q303A-303P	DTA143A	Transistor (Si)	S 16
Q304A-304P	2SC2021	Transistor (Si)	24
,305I-305P			
Q305A-305H	2SA937	Transistor (Si)	9
,307			
Q306	2SB1015	Transistor (Si)	1
Q308	2SD1406	Transistor (Si)	1
Q309	DTC124XA	Transistor (Si)	1
Q310,311,	DTA124EA	Transistor (Si)	3
,312			
D300I-300P	1SS131	(DIODES) Diode (Si)	
,301A-301P	1SS131	Diode (Si)	162
,302A-302P			
,303A-303P			
,304A-304P			
,305A-305P			
,309A-309P			
,310A-310P			
,311A-311P			
,312A-312P			
,313-322			
D306A-306P	MA4047	Diode (Si)	16
,307A-307P			
D308A-308P	MA4030	Diode (Si)	16
SA30A-30F	PQVDSAE310F1	(VARISTORS) Varistor (Surge Absorber)	S 12
,31A-31F			
ZNR30A-30P	ERZC03DK241	Varistor	32
,31A-31P			1
PC300A-	PQVITLP521	(PHOTO ELECTRIC TRANSDUCER) Photo Coupler	16
PC300P			1
Z300,301	EXBP88222K	(COMPONENTS COMBINATIONS) Resistor Array	S 3
,303			
Z302	PQRS8B8102J	Resistor Array	1
Z304,305	EXBP88473K	Resistor Array	S 2
L30A-30F,	PQLQZK101K	(COILS) Choke Coil	12
,31A-31F			
L32A-32F,	PQLQZM100K	Choke Coil	12
,33A-33F			
L300A-300P	PQLQZM2R2M	Choke Coil	64
,301A-301P			
,302A-302P			
,303A-303P			

Ref. No.	Part No.	Part Name & Description	Pcs
T300A-300P T301A-301P	ETA14Y85AY ETE13K38AY	(TRANSFORMERS) Interface Transformer Pulse Transformer	16 16
X300	PQVCX4000N8Z	(CRYSTAL OSCILLATOR) Crystal Oscillator	1
SW2 SW3	PQSH1A12Z PQSS2A20Z	(SWITCHES) Switch, Reset Switch, System Program	1 1
RLY10A-10F RLY30A-30P	PQSL49Z PQSL41Z	(RELAYS) Relay Relay	6 16
C300A-300P ,301A-301P	ECEA1HU3R3	(CAPACITORS) 3.3	S 32
C302A-302P ,303A-303P	ECEA1HU2R2 ECKD1H472MD	2.2 0.0047	16 32
C304A-304P C305A-305P	ECEA1HUR47	0.47	16
C306A-306P ,307A-307P	ECEA1HU010	1	32
C309, 313 C310,311 C314,315 C317,322 C318-321 C330A-330F C340,341 C360,363 C361,362 C365A-365P C370	ECCD1H221J ECCD1H470KC ECEA1EU101 ECEA1VU101 ECEA1VU330 ECKDKC222KB ECEA1VSS222 ECQV1H104JZ ECKD1H223MD ECUV1H224ZF ECEA1CU102	220P 47P 100 100 33 0.0022 2200 0.1 0.022 0.22 1000	2 2 2 2 S 4 6 2 2 2 16 1
R300A-300P ,301A-301P	PQ4R10XJ220	(RESISTORS) 22	32
R302A-302P ,303A-303P	PQ4R10XJ682	6.8k	32
R304A-304P R305A-305P R306A-306P R307A-307P R308A-308P R309-312 R313 R314,315 R316 R317 R318 R319 R320, 370, ,321A-321P R322A-322P R323A-323P R324A-324P ,325A-325P R326A-326P R360A-360P R375	PQRD2TJ102 PQ4R10XJ470 PQ4R10XJ154 PQ4R10XJ103 PQ4R10XJ561 ERD16TJ154 ERD16TJ105 ERD16TJ103 ERD16TJ104 ERD16TJ393 ERD16TJ821 ERD16TJ181 ERD16TJ101 PQ4R10XJ3R3 PQ4R10XJ472 PQ4R10XJ121 PQ4R10XJ222 PQ4R10XJ820 ERD16TJ220	1k 47 150k 10k 560 150k 1M 10k 100k 39k 820 180 100 3.3 4.7k 120 2.2k 82 22	S 16 16 16 16 4 1 2 1 1 1 1 18 16 16 32 16 16 1

Ref. No.	Part No.	Part Name & Description	Pcs
E301	PQJJ1TA3Y	(OTHERS)	6
E302	PQJJ1TB16Z	Jack, CO (MJ1A-MJ1F)	16
E303	PQJS40R30Z	Jack, EXT (MJ2A-MJ2P)	1
E304	PQJP14D49Z	Connector Socket, 40P (J1)	1
E305	PQJP12D68Z	Connector Plug, 14P (CN10)	1
E306	PQJP7D68Z	Connector Plug, 12P (CN6,7)	2
E307	PQJP2D72Z	Connector Plug, 7P (CN9)	1
		Connector Plug, 2P (CNN1)	1
MAIN-B BOARD PARTS			
PCB2	PQWP261610M1	Main-B P.C.Board Ass'y (NLA)	1
IC200A- IC200F	PQVINJM4558M	(ICs)	6
IC201A- IC201F	PQVITC4066BF	IC	6
IC400-412	PQVIM402101P	IC	13
IC413,414	PQVITD62706P	IC	2
IC426,512	PQVINJM4558D	IC	2
IC500	PQVIH63B03XP	IC	1
IC501	PQWIT61610M2	IC	1
IC502,503	PQVIHM6264LA	IC	2
IC504,505	PQVIMT8870BC	IC	S 2
IC506	PQVIMS6242BS	IC	1
IC507	PQVILR4089	IC	1
IC508	PQVI63HB110	IC	1
IC509	PQVITC7H08P	IC	1
IC510	PQVITC7H32P	IC	1
IC511	PQVITC7H04P	IC	S 1
IC513	PQVITC7H138P	IC	S 1
IC514	PQVITC7H139P	IC	1
Q201A-201F .202A-202F .203A-203F .204A-204F .400,401,402	DTA124XA	(TRANSISTORS)	27
Q205A-205F	2SA1626	Transistor (Si)	⚠ 6
Q206A-206F	2SC2590	Transistor (Si)	⚠ 6
Q210A-210F .505	DTA144A	Transistor (Si)	S 7
Q500	2SA937	Transistor (Si)	1
Q502	PQVTDT114Y	Transistor (Si)	S 1
Q503,504	2SC2021	Transistor (Si)	2
D200A-200F .201A-201F .500,501 .503,504 .505,508- .512,520 .521	1SS131	(DIODES)	⚠ 24
D203A-203F	PQVDHZS2B1	Diode (Si)	⚠ 6
D204A-204F .205A-205F	MA4047	Diode (Si)	12
D210A-210F	PQVDS1YB40F1	Diode (Si)	⚠ 6
D400	MA4091	Diode (Si)	1
D502	MA4062	Diode (Si)	1
D506	MA4036	Diode (Si)	1
D534	PQVDMTZ15A	Diode (Si)	1
VD500	PQVD1SV124	Diode (Si)	1

Ref. No.	Part No.	Part Name & Description	Pcs	Ref. No.	Part No.	Value	Pcs
ZNR200A-ZNR200F	ERZC07DK820	(VARISTORS) Varistor	6	C502,505-,509,511 ,513,517 ,522,523 ,530,590	ECQV1H104JZ	0.1	13
T200A-200F	ETA14Y85AY	(TRANSFORMERS) Interface Transformer	6	C503,504 ,510,512 ,531,532 ,533,591	ECKD1H223MD	0.022	8
Z500,501,502	EXBP88473K	(COMPONENT COMBINATIONS) Resistor Array	3	C514 C515 C516,519 C518 C521 C524 C525-528 ,551	ECQM1H472JV ECEA1AU470 47 ECKD1H103MD 0.01 ECEA0JSS222 2200 ECEA1HU3R3 3.3 EECW0HS105Z 1 ECEA1VU330 33	0.0047 0.022 0.01 0.2200 0.3.3 0.1 0.33	1 1 2 1 1 1 5
TH500 TH501	PQRRTS203U PQRRTS104U	(THERMISTORS) Thermistor Thermistor	1 1	C529 C550 C561 C562	ECEA1HU010 ECEA1EU100 ECQV1H474JZ ECQV1H124JZ	1 10 0.47 0.12	1 1 1 1
X500 X501 X502	PQVCX7600N5Z PQVCX3579H5R PQVCL3276N4Z	(CRYSTAL OSCILLATORS) Crystal Oscillator Crystal Oscillator Crystal Oscillator	1 1 1	R200A-200F ,510,512 ,515,518 ,550	ERD16TJ104 100k	(RESISTORS)	11
SA200A-SA200F	PQVDSAE310F1	(VARISTORS) Varistor (Surge Absorber)	6	R201A-201F R202A-202F ,220A-220F ,223A-223F ,232A-232F ,233A-233F ,235A-235F ,237A-237F	PQRD12VJ223 ERD16TJ122 22k 1.2k	11	6
VC500	PQCVTZB30B	(VARIABLE CAPACITOR) Trimmer	1	R203A-203F R204A-204F ,237A-237F	ERD16TJ5R6 ERD16TJ103 490	5.6 10k	43
L500-504 L520	PQLQZM1R5M PQLQZM2R2M	(COILS) Choke Coil Choke Coil	5 1	R205A-205F R206A-206F R207A-207F ,209A-209F ,210A-210F ,519,535	ERD25TJ390 ERD10TLJ183 ERD16TJ472 39 18k 4.7k	6 6 20	13
PC200A-PC200F PC201A-PC201F PC202A-PC202F	PQVIPC851K PQVITLP521 PQVIPC814K	(PHOTO ELECTRIC TRANSDUCERS) Photo Coupler Photo Coupler Photo Coupler	6 6 6	R208A-208F R221A-221F R222A-222F ,234A-234F ,236A-236F R224A-224F ,225A-225F ,230A-230F ,231A-231F R226A-226F ,227A-227F ,228A-228F ,229A-229F R238A-238F ,239A-239F ,240A-240F ,470-484 ,500-508 ,540,563 ,564	ERD16TJ392 ERD16TJ152 ERD16TJ471 3.9k 1.5k 470 ER016CKF1003 100k 300k 47k	6 6 24	6 6 20
C201A-201F C202A-202F ,563 C203A-203F C205A-205F C206A-206F C207A-207F C208A-208F ,209A-209F ,211A-211F ,215A-215F C210A-210F ,214A-214F C212A-212F ,213A-213F ,400 C220A-220F ,401 C230A-230F C405-408 C500,501	ECQE2E474MZ ECEA1HU100 10 ECEA1HU220 ECEA1AU220 1000P ECQV1H333JZ ECQV1H563JZ 0.056 0.047 120P ECQV1H183JZ 0.018 100 120P ECUV1H121JC ECQV1H273JZ 15P	(CAPACITORS) 0.47 10 22 22 1000P 0.033 0.056 0.047 120P 0.018 100 120P ECUV1H121JC ECQV1H273JZ 15P	6 7 6 6 6 6 24 12 13 6 7 6 4 2	45			

Ref. No.	Part No.	Part Name & Description	Pcs		Ref. No.	Part No.	Part Name & Description	Pcs	
R241A-241F .250A-250F .255A-255F .525,538 .562,565	ERD16TJ223	22k	22		D15-18 .23-29	1SS131	Diode (Si)	11	
R242A-242F	ERD16TJ823	82k	6	▲	D19	MA1056	Diode (Si)	1	
R260A-260F	PQ4R18XJ821	820	6		D20	PQVDEK03	Diode (Si)	1	
R400-407	ER016CKF1151	1.15k	8		CA1	PQXF6WB07	(COMPONENT COMBINATION) Capacitor Array	1	
R408-423	ER016CKF49R9	49.9	16				(CAPACITORS)		
R424-439	ER016CKF1101	1.1k	16		C1	ECET50S103SW	10000	1	
R456-459	ER016CKF6491	6.49k	4		C2	ECET35S472SW	4700	1	
R460,461	ERD16TJ182	1.8k	2		C3	ECEA1EU331	330	1	
R509,511	ERD16TJ333	33k	2		C4,6	ECET35S682SW	6800	2	
R513,514	ERD16TJ334	330k	2		C5,7	ECEA1EU331	330	2	
R516	ERD16TJ154	150k	1		C8	ECET35S222SW	2200	1	
R517	ERD16TJ105	1M	1		C9	ECEA1AU221	220	1	
R520	ERD16TJ821	820	1		C10	ECKD1H103MD	0.01	1	
R521,522 .523	ERD16TJ391	390	3		C11	ECEA1AHA101	100	1	
R526	ERD16TJ561	560	1		C12	ECKD1H102KB	0.001	1	
R527,549	ERD16TJ681	680	2		C13	ECEA1HU2R2	2.2	1	
R529	ERD16TJ222	2.2k	1				(RESISTORS)		
R530	ERD16TJ683	68k	1		R12	ERD16TJ682	6.8k	1	
R533	ERD16TJ102	1k	1		R13	ERD16TJ331	330	1	
R536	ERD16TJ221	220	1		R14	ERDS1TJ101	100	1	
R541	ER016CKF3002	30k	1		R15,16	ERD16TJ823	82k	2	
R542	ERD16TJ153	15k	1		R17,18	ERD16TJ103	10k	2	
R543	ERD16TJ183	18k	1		R19,20	ERDS1TJ151	150	2	
R544	ERD16TJ394	390k	1		R21,22	PQRD1VJ1R0	1	2	
R545	ERD16TJ184	180k	1		R23,24	ERDS1TJ181	180	2	
R580,581	ERD16TJ151	150	2		R30	ERD25TJ153	15k	1	
R582	ERD16TJ101	100	1				(OTHERS)		
		(OTHERS)			E1	XBA1C20NU100	(OTHERS)	3	
E201	PQJP4D14Z	Connector Plug, 4P (CN2,3)	2		E2	PQJP4D16Z	Fuse (F1-F3)		
E202	PQJP40D53Z	Connector Plug, 40P (CN1)	1	▲	E3	PQJP7D19Z	Connector Plug, 4P (CN13)	1	
E203	PQJS12L31Z	Connector Socket, 12P (J6,7)	2		E4	PQJP7G3Z	Connector Plug, 7P (CN14)	1	
E204	PQJS26R30Z	Connector Socket, 26P (J4)	1		E5	PQJP9D68Z	Connector Plug, 7P (CN12)	1	
E205	PQJS2L26Y	Connector Socket, 2P (J5)	1		E6	PQJS7L33Z	Connector Plug, 9P (CN8)	1	
E206	PQJS9L31Z	Connector Socket, 9P (J8)	1				Connector Socket, 7P (JA9)	1	
E207	PQJS2L55Z	Connector Socket, 2P (JN1)	1						
POWER REGULATOR BOARD PARTS					POWER SUPPLY PARTS				
PCB3	PQWP361610M1	Power P.C.Board Ass'y (NLA)	1		PCB4	PQWP461610M1	Power P.C.Board Ass'y (NLA) ▲ (with/C401-404,ZNR401, L401, E403, E404, E406)	1	
IC1	PQVITA7924	(ICs)			C401,404	ECQU1A473MH	(CAPACITORS)		
IC2	PQVIPC79M18F	IC	1		C402,403	ECKDKC222KB	0.047	2	
IC3	PQVITA7812AP	IC	1	S			0.0022	2	
IC4	AN7912T	IC	1	S					
		(TRANSISTORS)			ZNR401	ERZC14DK431U	(VARISTOR) Varistor	1	
Q2	2SA937	Transistor (Si)	1		L401	PQLE61	(COIL) Coil	1	
Q3	2SB834	Transistor (Si)	1		SW1	EST15704V	(SWITCH) Switch, Power	1	
Q4	2SC2673	Transistor (Si)	1		T1	PQLT5M9M1A	(TRANSFORMERS)		
Q5	2SA881	Transistor (Si)	1		T2	PQLT1M9M1A	Power Transformer	1	
Q6	2SB1015	Transistor (Si)	1				Bell Transformer	1	
Q7	2SD1406	Transistor (Si)	1						
D1,3	PQVD2B4B41	(DIODES)							
D2	PQVD3B4B41	Diode (Si)	2						
D10,12,13 .21,22	1SR35-200	Diode (Si)	1						
D14	MA4110	Diode (Si)	5						
			1						

Ref. No.	Part No.	Part Name & Description	Pcs	Pcs	Ref. No.	Part Name & Description	Pcs
E400	PQWAT616M	(OTHERS) AC Power Cord Assembly	1	D600,601	1SS131	(DIODES) Diode (Si)	2
E401	PQUV36Y	Power Box Cover	1	L600,603	PQLQZM1R5M	(COILS) Choke Coil	2
E402	PQUV37Y	Power Box	1	L601,602	PQLQZM2R2M	Choke Coil	3
E403	PQJS7L6Z	Connector Socket, 7P (J10)	1	,604			
E404	PQJP7C1Z	Connector Plug, 7P (BATT JACK)	1	C600-605	ECKD1H102KB	(CAPACITORS)	6
E405	PQMD4012Z	Bracket, Power Box	1	,614	0.001		
E406	XBA2F15NU2	Fuse (F400)	1	C603,606	ECKD1H223MD	0.022	3
E407	PQQT4181Z	Label	1	C608	ECQM1H332JV	0.0033	1
LED BOARD PARTS				C609,611	ECQV1H104JZ	0.1	3
PCB5	PQWP5T61610M	LED P.C.Board Ass'y (NLA)	1	,626	ECQM1H682JV	0.0068	1
D800	LN220RPH	(DIODES) LED	1	C610	ECQV1H473JZ	0.047	1
D801	LN420YPH	LED	1	C612	ECQV1H683JZ	0.068	1
D802	LN320GPH	LED	1	C613	ECQM1H222JV	0.0022	1
E800	PQJS4L32Z	(OTHERS) Connector Socket, 4P (J6)	1	C615	ECQV1H124JZ	0.12	1
E801	PQHR402Z	Spacer, LED	3	C616	ECQM1H103JV	0.01	2
JACK BOARD PARTS				C617,621	ECEA1HU330	33	1
PCB6	PQWP661610M1	Jack P.C.Board Ass'y (NLA)	1	C618	ECEA1HU4R7	4.7	2
L501,502	PQLQZY333J	(COILS) Choke Coil	2	C619,620	ECEA1HU010	1	2
L503,505	PQLQZL2R2K	Choke Coil	2	C622,623	ECEA1HU100	10	1
L504	PQLQZL1R0K	Choke Coil	1	C630	ECQV1H104JZ	0.1	1
T501,502	PQLT2D6A	(TRANSFORMERS) Transformer	1				S
C501	ECFD1E473MD	(CAPACITOR) 0.047	1	R600	ERD25TJ561	560	1
E501	PQJS4L17Y	(OTHERS) Connector Socket, 4P (J7)	1	R601	ERD16TJ224	220k	1
E502	PQJJ1E1Y	Jack, Paging	1	R602,611	ERD16TJ273	27k	2
E503	SJK8	Jack, EXT. Music	1	R603	ERD16TJ124	120k	1
SMDR BOARD PARTS				R604	ERD16TJ393	39k	1
PCB7	PQWP761610M1	SMDR P.C.Board Ass'y (NLA)	1	R605,606	ERD16TJ103	10k	5
IC600	PQVIHD75189P	(ICs)		,607,621			
IC601	PQVIHD75188P	IC	1	,623			
IC602	PQVIBU3140	IC	1	R608,609	ERD16TJ104	100K	3
IC603,604	PQVINJM4558D	IC	3	,610			
,605				R612,622	ERD16TJ223	22k	2
Q600	DTA143XA	(TRANSISTORS) Transistor (Si)	1	R613	ERD16TJ102	1k	1
Q601,602	DTC124EA	Transistor (Si)	3	R614	ERD16TJ563	56k	1
,603				R615,616	ERD16TJ123	12k	2
Q604	2SC2878	Transistor (Si)	1	R617	ERD16TJ222	2.2k	1
Q605	2SC2021	Transistor (Si)	1	R618	ERD16TJ474	470k	1